The Builder.

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IN July last we referred to the extraordinary excitement which prevailed on the subject of railways, the gambling carried on, and its probable consequences: we mentioned some of the newest schemes before the public, and referred to the singular change in opinion which had taken place since the time when the towns were striving to keep the rail as far from them as possible, and spent large sums of money to injure themselves.

At the moment we wrote the mania for speculation in railway shares seemed almost universal, and might have been thought at its highest. Since then, however, it has increased in a fearful manner, and, at the present moment, possesses the whole mind of thousands. It is madness, and nothing short of it. Shares in projects to which an Act was refused for reasons which will exist when the application is again made, find purchasers at a premium; scrip, which could be bought yesterday for one pound, commands to-day three, although its circumstances remain precisely the same, and men talk of having made twenty, thirty, and forty thousand pounds by what seems a very safe and simple operation, namely, subscribing for shares at par, waiting a few days, until an adventitious value was given them by the prevailing desire to buy shares, selling them, and pocketting the difference.*

It is, perhaps, hardly our province to comment on these proceedings; our more legitimate business is the construction of railways, the design and arrangement of stations; but observing the extent of the prevailing mania and well assured of its injurious tendency, we cannot avoid earnestly conjuring our readers to resist the desire to gamble infused by example, and to seek to raise their condition by continuous industry, and the exercise of their abilities, rather than a lucky stroke of fortune.

It is hardly necessary to say, our remarks apply simply to buying shares to sell again, (speculating on a rise), and not to the legitimate investment of capital in railways. The extension of the railway system is in no way to be deprecated, but, on the contrary, to be assisted to the utmost consistent with the national resources, as by means of this, the general prosperity will unquestionably be advanced. At present the advantages of the system are but partially developed; every line which is brought into work will make them more palpable.

The *Westminster Review* for the current month contains an able article on the all-engrossing topic, and brings forward some original and striking notions. After combatting the unwise system of high charges, the reviewer remarks:—

"The true value and uses of railways has not yet dawned on men's minds. They are the future streets of the coming time, when horse and foot transit shall be nearly extinct; when the conquest of time and space, by steam or other power, shall have made intercommunication perfect between every farm, village, town, and manufactory throughout the island; when the industrious races, no longer driven away by high or uncertain rates of transit, shall people the whole borders of the lines; when farms and manufactories shall work in unison, and contribute to increased results; when the most improved labour among processes shall be applied to the production of food as well as other articles.

This principle is obvious, and may be thus illustrated:—The value of Regent-street does not consist in its being the line of transit between Waterloo-place and the City-road, but in being the medium of communication with numerous wealthy buildings on either side. Take away the buildings, and the street would become a comparatively insignificant road. And these houses have been built because there exists facilities for the supply of water, fuel, and provisions. Take up the water-pipes, and break up the road, the result would at no distant period be analogous to one of 'Sultan Mahmoud's ruined villages.'

Crowded cities have been a result of slow and expensive transit, and therefore highways, on the old system, have not become lines of farms, factories, and dwellings. But for this, water-pipes would have been laid throughout. With the advent of railways the difficulty ceases, and towns may expand, for ten miles of railway are but as three miles of omnibus. Our railways will become streets of detached buildings, factories, dwellings, and farms, so soon as their uses shall be rightly appreciated; that the petty profits of distant transit shall merge and be overwhelmed in the huge gain to be wrought out from the land which bounds them; that the suicidal process of high fares shall be abandoned, which, like heavy turnpike tolls, deter the public from their territories."

Stationary engines, when not required for the line, should be used, it is urged, to carry on improved farming operations, independent of times and seasons, and with the minimum of human drudgery. "In all farm cultivation, as in factories, transit is one of the most costly items. No farms laid out on the ordinary plans, with mere highway transit, could compete with farms laid out along a line of railway, any more than a factory with distant cartage could compete with one situated on a canal or railway, and ultimately, when the uses of railways are thoroughly apprehended, all new farms and factories will be located thereon; and in self-defence, the existing farm and factory owners must construct railways along their roads and streets. Where the mountain cannot come to Mahomet, Mahomet must go to the mountain! Upon this principle we feel assured that ere long the system will commence of laying down lines of rails along all the borders of highways, communicating with the various farms.

A stationary engine should be as much the central moving power—the nucleus of a farm—as of a factory. No factory of any magnitude is now constructed without an engine, and the factory is the centre of a neighbourhood of greater or less extent. Supposing a railway to be constructed through a line of factories, the engine power of those factories might be used for the purpose of atmospheric traction during meal times, exhausting a receiver for that purpose. And thus in farm districts the power need only be applied to road purposes when required, using it for farm purposes at all other times."

Viewing the Epsom line as the first of the atmospherics, the reviewer selects that as the scene of operations, and shews how he would proceed:—

"We would procure a well or underground tank to be made to receive the liquid contents of the sewers, either of Croydon or of the Deptford marsh. By stationary engine power we could force this sewer water through a line of pipes along the course of the railway to the next stationary engine, used for working the line, in the neighbourhood of which land fit for agricultural purposes could be found. We would then, by means of the engine power, force the sewer water up a stand pipe precisely similar to the mode used by the water companies for high service. Having secured, on lease or otherwise, a sufficient extent of ground proportioned to the supply of sewer water, we would apply it to the land in the mode thus described in Martin's 'Thames Embankment and Metropolis Improvement Plans,' p. 17.

'The consideration which I have so long given to this most important subject, leads me here to propose a system of distributing the manure, which appears to me to be greatly superior in economy and efficiency to the foregoing, or to any at present in use:—it is to apply the well-known principle of *fluids finding their level*—thus to convey the sewage in its most fluid state, by means of pipes, from the principal receptacle or great sewers, and to then pump it up into a small receptacle or hydraulic tower of sufficient elevation, from which a pipe should descend, and be laid down into the centre of the tract to be manured. A cock and strong caoutchouc cloth hose, with one or more small branches, should be attached to the extremity of the pipe, and a swivel cock placed at the junction of the branches to allow of their being easily moved round; by these means, each hose being guided by a man, the manure could be turned on, and projected in every direction in the same way as the firemen discharge water upon a fire; and, without moving the main hose, a space of three miles in circumference could be manured with only one half-mile of iron pipe, the same hose serving to manure the whole tract, and be then readily transported to another locality.'

The value of this system may be understood from the fact that land in the neighbourhood of Edinburgh has risen in value from 2*l.* to 20*l.*, 30*l.*, and 40*l.* per acre, as meadow land, by the simple application of sewer water, by which means four and five annual crops of grass are obtained.* One cause of the value of this Edinburgh land is its proximity to the city. But land bordering a railway is, if the railway be rightfully applied, equally available at ten miles distance as ordinary land at one.

To this same station we would lay down a main of water-pipes from the most eligible supply along the whole course of the line; and we would also lay down a main of gas-pipes.

At the station, we would inclose on the cheapest plan of an ordinary railway terminus, from two to four acres of land in a square form, with brick walls, say 20 feet high. The roof to be in spans of 50 to 60 feet, formed of iron, and supported on iron columns. The whole of this we would cover in with hail-proof glass, a process that will be ultimately cheaper than slating, and far more durable. In Belgium, we believe, at this time glass for

* In France the mania is as strong as in England, and occupies the thoughts of all. In Austria, it appears, no new lines will be authorised till 1850, when all lines already commenced are to be completed.

* We quote the following from the prospectus of a company about to carry out Mr. Martin's plans.

"The great value of liquid manure, when applied to fertilize the land, has long been known and acknowledged, and of late the importance of the subject has been rendered more obvious by means of treatises on agricultural chemistry, and the experience of numerous enlightened persons who have used it on their farms and estates; more especially at Edinburgh, where lands that were previously worth but from 5*s.* to 1*l.* per acre have, by means of it, been brought to yield a net rent of 20*l.* to 30*l.* per acre per annum. In regard to the drainage of populous towns, it assumes a still more important aspect; for, besides the value of the sewage as manure, there is the great advantage of preventing the nuisance inseparable from the ordinary discharge of drainage, viz.—by polluting the waters, and contaminating the air, to the great injury of the public health. In the *metropolis* these considerations become of incalculable moment. To prevent evils, and to realise benefits, both of immeasurable extent, are results so important to the welfare of the community, that any plan which is calculated for their attainment may justly claim the support and co-operation of the public: and it must be gratifying to know that such a plan can be effected, with advantage also to those who may undertake its execution. The subject has been carefully investigated and considered, both scientifically and practically, and the result is, that a company is now in the course of being formed, to effect the important object of conveying the liquid manure from the sewers of London, to fertilize the surrounding country.

"Without entering into details, it may suffice to state that a plan has been matured, with the co-operation of several eminent agriculturists, engineers, and others conversant with the various bearings of the subject, upon which specific calculations have been made; and it appears that the liquid manure from the sewers may be supplied by pipes and engines to the extent of about thirty miles round London, at the rate of 100 tons per acre per annum, at 3*d.* per ton (or 1*l.* 5*s.* per acre), and that at this price it will yield a very liberal profit.

"The scheme will eventually embrace the whole of the sewage on both sides of the Thames; but it is proposed at first to limit the operations to those comprised in King's Scholars' Pond and Ranelagh Districts, which will suffice for distribution over upwards of 100 square miles, comprising a large extent of poor lands, particularly susceptible of improvement."

green-house purposes is sold at the rate of ten shillings per hundred superficial feet, weighing fourteen ounces to the foot. We are much mistaken if the two railway magnates who have just established a glass-work in Sunderland will not produce it cheaper than this.

Around the outer wall we would erect dwellings of two floors, leaving four gateways into the inner square. The exuviæ from these dwellings would be carried by pipes to a common receptacle to be applied to the purposes of manure, so chemically prepared on the plans of Liebig as to neutralize all odour. The number of dwellings surrounding an inclosure of four acres would be about eighty. Assuming four grown persons for each, the exuviæ would be equivalent to manure the heavy corn crops of one hundred and sixty acres of ground, and be worth 300*l.* per annum or more.

The internal building or green-house would thus be very cheaply attained. The external walls would be gratuitous, as being part of the houses, and the central columns would serve as rain conduits; the ground would require no paving or laying, and the only real cost would be the roof.

The application of this large green-house would be for the production of vegetables in the winter time. Four acres thus inclosed and sheltered would be multiplied in value many fold. Produced on the very verge of the railway, the crops could be gathered and delivered direct into the markets of the city within an hour of cutting. At other periods the external land could be applied to the same purposes.

For all these arrangements the steam-engine would be a most valuable adjunct. The waste steam would warm the green-house and the dwellings, and would serve the purposes of cookery, either in a general kitchen or separately. The condensation water would supply baths, and thus be rendered available for irrigation purposes. It would serve also for washing clothes, and the steam would serve for drying them."

This is with a view to towns-people with small incomes; for the rich he goes further:—

"On a healthy spot, say Epsom Downs, we would erect a similar glazed inclosure as a winter garden and walk for the inhabitants of surrounding villas. If the neighbourhood increased, a school and a lecture-room, a library, and perhaps a theatre, should be added to the establishment; but in all cases a steam-engine or steam-engines should be the sources for warming, ventilation, and baths. We can imagine that all the luxuries procurable at the country houses of the wealthiest landholders might thus be achieved at a moderate cost. With large neighbourhoods even Chatsworth might be eclipsed. With double glass roofs a very small quantity of fuel would suffice to warm a conservatory of very large size.

It must be obvious that on such a plan the whole road would rapidly become a system of detached buildings; for the facility of obtaining water and fuel at every point would remove all obstacles. It would be worth the while of the inhabitants to pay an annual rate to the road makers, and throw it open to all dwellers on the line.

If our views be correct, the time will come when railways will be made for the purpose of bringing land into cultivation, when every two miles of land will be intersected with a railway throughout the whole country. If this be so, where is the wisdom of the men who are expending money in millions merely to oppose fancied rivals? Where is the use of crushing an opponent at ten miles' distance, when two or three other lines are sure to intervene subsequently? If we cast our eyes over the map, we cannot resist the conviction that every mile of highway will ultimately be replaced by two miles of railway. We cannot but laugh at the opposition to the London and York by the London and Birmingham, while perhaps at the very time a new line is in contemplation between both. As the conviction grows that the railway is not the mine—that the land is the true mine—and the railway is but the access to the mine, this sort of absurd opposition will diminish and disappear."

The article ends with a proposition which will be ridiculed by many and deemed chimerical by most, but nevertheless is worthy of consideration.

"Unless a succession of bad harvests intervene to check prosperity, the year 1850 will behold the extinction of horses as a moving power in England, for the purposes of pecuniary gain in the public transport of passengers and goods. Every new street, every village, every farm will have its railway, and stationary power will have become so common in its numerous applications, that it will be turned on and off for the purposes of haulage as easily as gas jets for the purpose of lighting. And the modes of its application will be manifold. Beyond the mere purposes of traction, there are other important problems to work out. There is an important process to be achieved in English agriculture, which seems not yet to have entered into the imagination of any of our improvers. The reason seems to be that our chemists are not mechanicians, nor are our mechanicians chemists; but be it as it may, we have never yet seen the matter proposed, and possibly may run the risk of being deemed mere visionary enthusiasts for propounding it. Yet in sober earnestness we propose—

To convey artificial heat beneath the earth, on open land, so as to maintain the temperature suited to the growth and development of the vegetable tribes, by means of pipes of metal or earthenware; circulating steam, or hot water, or air, from a close boiler or stove. These pipes to be laid at depths of from 4 to 5 feet, in the manner of deep draining. Also, by a similar process, to inject the ground with gaseous manure, as ammonia and carbon, so that the heat and gases may be constantly ascending towards the surface, and thus be absorbed by the roots of the plants."

We may look for great things in the next twenty years.

JOTTINGS ABOUT RAILWAYS.

Any iron wheel may be made to travel almost noiselessly along a railway, it is said, by inclosing its two sides with boarding or thin metallic sheeting, so as to confine a quantity of sawdust in immediate contact with its spokes; sawdust being anti-vibratory will effectually prevent the wheel vibrating, thus enabling it to roll without noise. All who are interested in lessening the noise of railway wheels, should make this easy method as public as possible, so that railway directors may be urged to adopt a plan so inexpensive, efficacious, and desirable.——An ingenious plan for rendering the electric telegraph valuable as a means for indicating the precise position of a railway train upon different parts of the line, was lately submitted to the Academy of Sciences in Paris, by M. Dujardin, the inventor. He proposes, that as a locomotive passes by certain places, it shall touch a spring in connection with the wire, and then communicate with the index of the station by certain signs previously agreed on.——A project has just been made public having for its object the effecting a telegraphic communication, by means of electricity, between London and all the principal towns in England, and also between the principal large commercial towns. To carry out the project, it is proposed to establish a company, and to raise a capital of 500,000*l.*——In a recent number we gave an account of a method of obtaining vacuum for atmospheric railways by the direct action of steam, and gave credit to Mr. Nasmyth for the invention. It appears, however, that he was anticipated by Mr. Robert Mallet, Mem. Inst. C. E., who minutely described the process in a recent number of "Weale's Quarterly Papers on Engineering," and who claims the credit of being "the first inventor."——A series of private experiments has lately been made on the London and Croydon Railway, for the purpose of testing the powers of atmospheric propulsion. The question as to the power of ascending inclines has been completely set at rest. A train was brought to the foot of an incline of one in fifty, and stopped so as to deprive it of any power it might have acquired from the impetus of its previous progression. It was then propelled by the atmosphere up the incline, and that which many of our most eminent engineers have declared impossible was accomplished with the greatest ease imaginable. Among other results that have been obtained, we may mention that five miles length of tube has been exhausted in its whole extent, and that the piston has traversed the entire length of the tube.——The death of Lord Canterbury, by apoplexy, in a railway carriage, has given occasion to a surmise that railway travelling conduces to that disease. Dr. Badeley, of Brighton, having fully investigated the subject, asserts that the surmise is wholly groundless. He says:—"If a calculation were made of the number of persons who have travelled by railway during the year, and the number of deaths from apoplexy that have occurred during the journey, I think that the question of cause and effect would at once be settled. Let the guards and the engineers be included in the calculation—men who are every day and all day engaged in their locomotive duty; has any single instance of apoplexy occurred in the whole corps? I have inquired of them whether their occupation has ever induced any affection simulating or threatening the disease in question, but I have, without exception been answered in the negative."——A novelty, in the form of a railway without steam or fire, presents itself in the proposed line from Callao to Lima, in Peru. The ground has a gradual and unbroken rise the whole way. Above Lima flows the river Rimac, which passes through a part of the city in its way to the sea near Callao. This river, though not navigable, affords at all seasons of the year a hundred times the water power necessary to work any traffic that can possibly come upon the rail. The saving of the usual expense of fuel is thus effected; and the cost of the steam-engines, and, what is no small item in railway expenditure, the charges for their after management are entirely avoided.——The Duke of Cleveland has issued the strictest orders to all his tenants and servants, on no account to allow any railway engineer to make a survey through any part of his property, by giving all who attempt to do so notice to desist; and if this is disregarded, commencing immediately an action for trespass against them. Two parties of surveyors in the neighbourhood of Barnard Castle have lately been repulsed. Watchers are posted night and day on the look out. Sapient duke!

STEREOCHROMY.

A NEW METHOD OF ARCHITECTURAL PAINTING, BY DR. FUCHS AND PROFESSOR SCHLOTTHAUER IN MUNICH.

Experiments which have been carried on in this respect for the last two years, in the Bavarian capital, have reached that point, where it may safely be said, "The thing is done." The first subject, however, to be broached is, that the new method of painting bears no analogy to the Pompeian, either in principle, far less in its technical part; and that it is something quite original and new. On account of its thorough novelty and originality, it would be wrong to consider it merely as a *substitute*, and we are sure that the more known, the more it will be applied to those purposes for which painting *al fresco* has been hitherto used. The distinctive characteristics of this new method, from all other sorts of painting hitherto practised, are its great durability and indestructibility—resulting from the particular chemical composition and preparation of colours, and the method of using them. Under these circumstances, it is very probable, that it will outdo all other methods of architectural painting, and become a common property of civilized nations.

This new technicism has appeared under a new name—as Dr. Fuchs (*Ober-Bergrath* to the king of Bavaria) has thought, that the appellation of *stereochromy* would be the best adapted to is peculiar features. Still, it is a truly national, *German* discovery, resulting from that all-sided development of art, which has been concomitant in Bavaria with an improvement in all branches of artistic mechanism, nay even the handicraft operations of the artisan. What has been done in that country for the casting of metals, fresco painting, and encaustic, nay even for the mechanism of the different sorts of lithography and galvanoplastic, is the best proof of an activity, which, in the present instance, has yielded a great result.

The want of pliable and constant means of

pictorial representation (colours), has been felt in all ages, especially by those, who, like the practical artist, were most suffering by this deficiency. It is known to every such, how much this has been the case in monumental or architectural painting, which did not only afford no adequate means for expressing the ideas of the artist, but subjected his creations to the everyday's influence and destruction of the elements. The usual *fresco* could not suffice the great masters; the inadequacy of colours, and the limited scope of technical execution, did not allow of the execution of masterpieces, where a rich display of groups and vast perspective were to be achieved—in fact, the colorit could never be worked out to a natural and harmonic *ensemble*, still less where the more worldly display of glaring colours was contemplated. Thus, several erroneous and noxious expedients were resorted to. In the *stanzas* of Raphael, we find corrections and after-work made obviously with *other* materials than those of *fresco* painting; and it is known, moreover, that this great man had made preparations to paint the Hall of Constantine in oil—in imitation of *Sebastian del Piombo*, who had resorted to the same in his mural paintings. Leonardo da Vinci had used a sort of varnish-painting in his celebrated "Last Supper," and thus surrendered an incomparable masterpiece to precocious destruction; and finally the frescos of the *Caraccis* and their pupils wouldn't have so much suffered, if they had not combined the simple method of fresco with the use of glue and *a la tempera* colours, for accomplishing a better colorit. It could not but happen, that in Munich, where similar pursuits were carried on of late, similar views and trials were resorted to. Mural paintings of the most diversified kind—the most stern and the most serene and lively—were to be executed; and it was natural, that the *fresco*, whose mild and quiet hue corresponded so well with the still and reserved character of the new historical, or rather religious school of painting, was found inadequate to these various exigencies. Many trials were, therefore, made to discover some new *technicism*, especially for mural painting, which should possess the undeniable advantages of *fresco*, without partaking of its defects. To those manifold endeavours, which grew out from the increase of artistic tendencies, and the higher claims of the constantly varying character of art—we are indebted for the introduction of the new encaustic method of Mr. Montabert, detailed in his *Traité complet de la peinture*, as well as that of the deserving method of encaustic painting of Mr. Fernbach.* To these experiments for discovering a new procedure of fresco painting, exhibiting a more natural and effectful colorit — *Stereochromy* owes its origin, at least in its incipient stages. A chemical discovery made by Dr. Fuchs (councillor of mines to the king), served to put in practice a series of thoughts, and ideas, and experiments, which Professor Schlotthauer had followed up for years, and it was proved again, how important it was that "science and art, theory and practice, should go hand-in-hand," and also how much it required to accomplish new things in art and its technics! While, in this instance, both talents, scientific, technical, practical, and artistic, were put into requisition—results were, indeed, achieved greater than they were, at first, contemplated; as there is every reason to believe that this new method will be also adapted for painting on canvas.

The painting is done by colours chemically prepared for this purpose, and, moreover, on a coat materially analogous with them; which combines, in paintings on canvas, into a thin integument, with which it becomes saturated; in mural paintings on stone or mortar, it is used as a coat of only a few lines thickness, which, however, unites even with the hardest substratum into a mechanically inseparable mass. The picture executed *stereochromatically* on this coat, is fixed (after its completion) in a very particular way—so much so that, after this operation has taken place, colours, coat and stone (or other substratum) present an intimately connected whole. It is, therefore, here *not* the case, as it is in *al fresco* painting, or even encaustic, that a defined, easily to be separated stratum of colour is formed; on the contrary, the very colours are converted, by the all-combining substance, into a rigid, nay petrified mass. In this intense combination with the stone or mortar, the colours become capable of even resisting pretty strong mechanical contact or force. We may pass with pretty sharp or pointed tools over the picture, —nay strike them with a hammer, without injuring or exfoliating the colour; and as to any endeavours of rubbing them off, there is no possibility of so doing. In a similar vigorous way, they resist chemical influence.

For testing these qualities, stereochromic paintings have been subjected to the most severe trials, which they have stood with astonishing success. It was resolved, to bring those elementary agencies which destroy pictures, as air and light, wet, heat and cold, and even acids, to bear upon them in forms more strong than they occur in the usual course of time. Stereochromic tablets, were, therefore, exposed to the various effects of sun and rain; but they remained unchanged. A comparative experiment of these tablets, one *al fresco* and the other stereochromised—painted on the same kind of sandstone, and the usual coating of mortar, were exposed to the severest test of the last rigid winter, and placed during the months of February and March, nearly for eight weeks in the frost, snow, and fog, and moreover water was thrown upon them, which converted them into a mass of ice. In this state, they were suddenly brought into heated rooms. After these experiments, the tablets exhibited a most different aspect. The fresco painting, although done in the most approved method, had experienced, especially in the parts representing carnation, the most complete destruction; whole parts became exfoliated, and the coat of mortar so softened, as to separate from the stone. The stereochromic painting, on the other hand, remained such as it had issued from the atelier of the artist, and the coat of mortar, formed (as well after as before the experiment) the same compact mass, combined with the stone. His majesty the king, who had seen the tablets as exhibited to the roughest weather, was much gratified at the results of this new discovery, which, according to royal command, has to be first employed on a large scale in the decoration of the outer walls of the Pompeian House, near Aschaffenburg. The durability of stereochromy has also stood the test of acids, which may be of importance, inasmuch as rain, especially that fallen during thunderstorms, contains nitric acid—it is true in small quantities; still large enough to produce some effect during the lapse of time. Acids, half diluted with water, will not affect perceptibly stereochromic pictures, while they produce on fresco paintings effervescence and immediate destruction.

With these rare qualities, perfectly resisting the ordinary effects of the elements, it is easy to be conceived what important advantages will be obtained for the ornamenting of outer walls with colour—advantages still greater, if we come to consider, that the layers of mortar required for the reception of stereochromic colour assumes, when dry, the hardness of marble; and we may not appear too sanguine in expecting, that this discovery will be pregnant with important advantages for the whole range of architectural pursuits, and, sooner or later, obtain general approbation.

We have to say, in conclusion, a few words on the artistic and technical character of the new discovery. The external appearance of these paintings is similar to that of fresco. Stereochromy possesses the same advantages as the latter, especially valuable for mural painting, viz. its great clearness, and the same lucid tones of the scale of colours; but, besides this, a greater force and depth, in which fresco is deficient. Stereochromy ranges over a greater extent of colours, and as those are capable of further mixture, it possesses more tints and shades than fresco, which is altogether to be compared to an instrument of a very limited range of tones. These were advantages appreciated by Mr. Cornelius, when, at his last stay at Munich, he saw the pattern tablets. To this is yet to be added, that the stereochromically prepared colours will dry uniformly and without any extraneous lustre whereby the ultimate effect of a picture can be calculated during its process, with a great degree of certainty, which is not the case with fresco. The process of painting itself is very easy and handy—much more so than in any other branch of pictorial art; it proceeds nimbly and slake, and the colour flows full and liquid from out the brush. As the ground is laid on over all, at once, and not piecemeal, and does not require but to be wetted at each time of operation, it will not be the case here (as it *is* with fresco painting), that if one be unable to finish a certain piece in the course of one day, he be obliged to have it obliterated, and to begin the whole afresh. The painting may be interrupted and resumed at pleasure, at any place desired; and it is also possible to go over the whole again after it has been once completed, for bringing all into due unison—imparting the most delicate melting and smoothing together to the whole.

And thus stereochromy may expect to be received confidently within the pale of existing methods of painting, the more so, as it does not attempt to out-elbow any thing existing, but to supply the artist with a new, beauteous, and handy method of mind's-manifestation—making its products almost indestructible, handing the *worthy* down to remotest posterity. —(From German Sources.) J. L——y.

* This procedure has been used with the best success in the execution of the large historical pictures in the Imperial Halls (*Kaiser-Sälen*) of the royal residence of Munich, by Mr. de Schnorr; and the description of the hitherto secret will shortly appear in a detailed description in the literary-artistic publishing Bureau of that city, as Mr. Fernbach has received the king's permission for so doing. His secret had not been hitherto known, but to the Committee of the Royal Academy of Arts.

EARLY DOMESTIC BUILDINGS.

At the literary institution of Frome, in Somerset, a number of lectures have been recently delivered by the gentlemen of the neighbourhood. In one on the "Feudal System," by Mr. Charles Bayly, of that place, the lecturer made the following remarks.

"The science of architecture in France and England before the thirteenth century was almost exclusively confined to ecclesiastical and castellated buildings. Indeed, the style of domestic architecture was so mean, that we feel surprised at the slight attention previously paid to it, and that no attempt was made to imitate the comfortable and luxurious domiciles of the Romans. The English houses were built chiefly of clay, held together by wooden frames. But amidst this neglect, there was introduced an invention which has produced great comfort, and which has contributed much to the refinement of modern domestic society. I allude to the invention of chimneys, which the architectural skill of the Greeks and Romans did not, I believe, accomplish; the ancients having allowed the smoke of their fires to escape through an aperture in the roof. This ingenious and useful discovery did not come into general use in England until the fifteenth or sixteenth century; and even now is seldom seen in the cottages of the poor in Ireland, or in those of the Highlanders in Scotland. The art of making glass, which was known to the Romans, and most probably practised by them in England, was lost soon after their departure. It seems strange to us, that the English, the Saxons, the Danes, and the Normans, should have submitted to the inconvenience of open windows in their houses for seven or eight centuries. Indeed, we are too apt to be misled in our estimate of the comforts of those times. The romances and ballads of the twelfth and thirteenth centuries would lead us to suppose that the spacious halls, the banquetting rooms, and chambers, they tell of, were more magnificent than those now in use; but if we could lift up the veil of departed years, we should see bare walls, without wainscot or even plaster, with the exception of some great houses which were furnished with hangings; and the greater part of these buildings had open windows, so small in size as to admit little light, but sufficiently large to allow the wind to sweep through them. But if domestic architecture was neglected, it is with the more astonishment we look back on the splendid ecclesiastical and castellated buildings which, at the same time, arose throughout Europe, and which I have before alluded to."

To elucidate this subject at greater length, we have put together a number of extracts from Mr. Bernan's interesting and valuable work on the history of warming and ventilating buildings, already referred to in our pages.*

* Published by Bell, Fleet-street.

"In the Anglo-Norman period small regard was paid to the habitations of the commonalty, which in London, the mother city of the kingdom, were, Stowe says, not more than sixteen feet high, poorly built of wood, and ill covered in with reeds and straw, with a hearth in the middle of the floor, and a smoke hole in the roof over it. Carpets were unknown, except as bedclothes or table-covers; and spreading straw and leaves on the floors formed part of the rough magnificence of the times. The practice was general. Pegge thinks it was adopted for coolness; and Nichols, with reason, adds for warmth also.* In the winter season the feet could be covered with the straw, and they required protection at all times from the cold damp floors of bare earth and stone in the hall and kitchen. The beds of the meaner sort were spread on the litter, and in great houses it served the purpose of a chair. Thomas à Becket, when chancellor to Henry II., according to Fitzstephen, was 'manful in his household, and had his hall strewed every day in the winter with fresh straw or hay, and in the summer with rushes and green leaves fresh gathered; for which the whimsical reason is given, that such knights as the benches could not contain, might not dirty their fine clothes when they sat on the floor.'†

From the contiguity and construction of the houses, accidental fires had been such cruel scourges of the Londoners, that, under Richard I., a law was passed, that in future all houses in the city should be built to a certain height of stone, and covered with slate and burned tiles;‡ and after the fire that destroyed the greater part of Oxford in 1190, the burghers, following the example of the Londoners, also began to construct their houses of stone; and in those quarters where the poor people were unable to be at the expense of this improvement, a high stone wall was raised between every four or more houses.§

It has been observed, that the practice of strewing the floors was universal; and it seems to have extended into the apartments of the kings themselves. William, son of William of Aylesbury, held lands from Edward I. on condition of providing straw for strewing the king's chamber in winter, and herbs in summer. Glass windows, that in the time of William the Red were a mark of great luxury and magnificence, when placed in a church or palace, begin now to be seen in the houses of persons who affected indulgences, and knew how to enjoy them. Chaucer, who from his tastes and propensities may be considered one of the 'perfect gentlemen' of his time, says in his Dreme, that in his bed-room,

> 'with glas
> Were all the windowes well yglazed;'

and kept in such good order as to be

> 'Full clere, with nat an hole ycrased;'

and moreover so beautifully painted,

> 'That to behold it was great joy;
> For holly all the story of Troy
> Was in the glaising ywrought.'

It may also be noticed that the windows were moveable; for he further tells us that when he was reposing, the

> 'Windowes weren shut echone,
> And through the glas the sunne shone'‖

upon his bed. The manner of hanging and fastening these windows is described by a cotemporary romancer. When the Squyr of Lowe Degre poured out the sorrows of his disconsolate love for the king of Bohemia's daughter, from which it is clear that the window she opened was framed and fastened like the casement in a modern cottage. Returning to the poet's bed-room for a few illustrations, it is found that as well as the windows,

> 'All the wals with colours fine
> Were paint both text and glose;'

which shews that the wall must have been plastered with some care before it could receive a painting, rough as it might be, and, therefore, without the chinks that let the wind into the Saxon palaces. Arras or tapestry was also hung on walls, of which that ornamenting the hall in Warwick Castle in 1344 was a superb specimen. It should, however, be borne in mind, that it was most likely seen only in regal palaces, or in houses rivalling palaces in their furniture and in the presumption of the owner.

Amidst all this laudable attention to warmth in nocturnal climate, no mention whatever has been made of any means of heating the dormitory; and there does not seem to have been any except a pan of charcoal. A notion may now be had of the comfort enjoyed in the houses of persons of rank. The spacious lofty hall, left open to the roof, had its windows placed high from the floor, and filled with oiled linen or louver boards, or occasionally with painted glass. Its clumsy unframed doors were opened by latches; and when the walls were not coarsely painted in the fashion of the time, they were left rough, and covered with arras suspended by hooks at a distance of three or four inches from the wall. The floor of stone or earth had a part at one end raised a little above the general level, and laid with planks. On this platform or dais stood a massive table and ponderous benches or forms, and a high-backed seat for the master under a canopy. On the hearth, in the middle of the hall, were placed the andirons for supporting the ends of the brands, that were arranged by means of a heavy two-pronged fork, the type and predecessor of the modern poker. On the roof over the hearth was a turret or louver, filled with boards arranged so as to exclude rain and wind, and permit the escape of smoke; and this was sometimes an object of considerable architectural beauty in the external aspect of the building.

The chamber, like the hall, was lofty, and lighted with tall narrow windows filled with oiled linen or glass, with a part made to open like a casement, and screened with a curtain; it had neither a hearth nor a flue.

The country houses of inferior landholders and farmers were generally one story high. If they were built with two stories, the roof was so deep as to reach to the ceiling of the lower room. The hall and kitchen forming one apartment, and roughly plastered, was open to the timbers of the roof, and sometimes had a louver, and a window that could be closed with a shutter.

> 'Barre we the gates,
> Cheke we and cheyne we and eche chinc stoppe
> That no light leopen yn at lover ne at loupe.'

When these houses had a room to sleep in, old and young reposed in the same apartment, and several in one bed; servants made their beds on the floor in the kitchen. Cottages had neither louver nor loupe, and their inmates lay round the fire.

The chimneyed chamber was spacious and lofty, and usually formed with a large bay window, looking into the court of the castle. It adjoined the hall, and was used on ceremonious occasions as a reception-room for the guests before they were ushered into the hall of entertainment, and to which they retired on leaving it. At other times this privy, or presence-chamber served, according to the poet, as a dining-room. Another apartment, distinguished as our lady's bower or parlour, and appropriated to the exclusive use of the dames, was that in which they received their visitors, passed their time, and often took their family meals in. The windows of this also opened into the dismal quadrangle, for all were obliged to sacrifice their feelings and enjoyment to security.

The stronghold of Conway is remarkable for exhibiting another domestic refinement, not found, except at Kenilworth, in any cotemporary building. A hearth is recessed into the wall, and has a flue rising from it for the passage of the smoke into the air. It is true, that after this period, flued fireplaces were sometimes made in rooms that had been erected without them, but the chimney in Conway Castle, and a similar one at Kenilworth, appear as if they had formed part of the original edifices.

Castles and mansions were now built of stone, but wood and plaster continuing to be the materials of ordinary houses, in towns destructive fires were common, and the custom of strewing the floors with straw must have greatly increased the danger. Chaucer says—

> 'Whan a chambre a fire is, or a hall,
> More nede is sodainly to rescowe,
> Than to disputen, and ask among us all,
> Howe the candel in the strawe is fal.'

This frequency of accident, more particularly in London, had led to the enactment of some judicious municipal regulations. The magistrates, says the Chronicle of London, quoted by Strutt, 'are empowered to enqyre if there be any house in the ward that is tiled without other thing than tile or lead, and there be any chemeni that hath a reerdos made uncomli, otherwise than it ought to be.' And also if any baker or brewer heat their ovens or other '(furnace) with strawe or reyde or other things that might cause peril of fire.' Every ward was also to have 'a racke with two long cheynes of yrne and two ladders,' and every house was to have a 'tub of water ready for peril of fire.' The scavengers' oath of office was, that they should examine that all 'chemys, reedossys, and furnessys be made of stone for defent of fire.'* But notwithstanding these precautions, the history of London and of other towns shew a lamentable disregard to the lessons of dire experience in every thing connected with the protection of buildings from fire.

The chimney has been considered an Italian invention. But if Winwall House be an Anglo-Norman edifice, its chimneys must have been built in the twelfth century; and those in the castles at Kenilworth and Conway will also long precede, in point of antiquity, the *camini* and *fumajuoli* of Padua and Venice. The fourth example of a chimney in an English building is that described by Leland, in his 'Itinerary,' where he gives an account of his visit to Bolton Castle. This building, he says, 'standethe on a roke syde; and all the substaunce of the lodgynge in it be included in 4 principall toures. It was finiched or Kynge Richard the 2 dyed! One thynge I muche notyd in the hawle of Bolton, how chimeneys were conveyed by tunnels made on the syds of the walls betwyxt the lights in the hawle, and by this means, and by no covers is the smoke of the harthe in the hawle wonder strangely conveyed.'† It has been seen that, previous to the erection of this stronghold, the word chimeney is of frequent occurrence. Chaucer in several places speaks of chambers with chimeneys; Longlande, we have seen, also employs it: and Wiclif, in his translation of the New Testament, in 1380, has the expression, 'thei schulen send him into the chymency of fier.' In the poetical vocabulary, 'chimeney' appears to be synonymous with 'fire-place,' or 'hearth recess;' and the verbal equivalent to the word in the reformer's Testament is 'furnace.' Leland, who wrote a century after, in using the word almost defines it. 'The chimeneys were conveyed by tunnels;' or, in other words, the fire-place was continued by a tunnel to the top of the building; a description that will accurately fix the meaning of the word when found in writers previous to the Tudor period; for it is quite obvious the chimneys in common use, and with which Leland was acquainted, had no tunnels to convey the smoke from the hearth—otherwise his admiration of those in Bolton Castle would have been unexplainable. His observation, that the smoke from the hearth was not conveyed by 'covers,' also shews that at the time he was writing, covers were common appendages to fire-places for conveying smoke.

It was, perhaps, from a desire to diminish the risk of accidents by fire that the custom prevailed of laying the floors with a coating of cement made of lime, and pounded rubbish, or pebbles. The floors in the upper rooms in the old part of the Abbey House, at Waltham, built by Sir Edward Denny, were overcast, or paved in this manner, with a coarse plaster of sand and pebbles, forming a crust about an inch thick, coloured deep red like a bright brick floor, and similar to the rude rough-cast or stucco floors seen in some parts of Lincoln and Yorkshire.‡ Glass was rare in the windows of gentlemen's houses before the time of Henry VIII.§ Copyholders and poor people had none. The windows belonging to Con-

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* Illustrations of Manners and Expenses of Ancient Times, p. 12.

† Brand. Popular Antiq. vol. i. p. 241.

‡ Stow. Survey of London, p. 73, ed. Thoms. The dwellings of the Scots were either very mean or extremely inconvenient. The bishop, noble, and king lived in small stone castles, perched on some precipitous rock, with massive walls enclosing narrow stifled apartments, that had no chimneys, and loopholes for windows. The cottages were slight erections of wood, without hearth, chimney, or window, and their towns were a collection of such hovels. The use of wood in building had been so general, that castles were built with it. Several of these combustible strongholds, belonging to the Celtic chiefs in Moray, were burned in the rebellion of Gillie-scop.—Chalmers's "Caledonia," vol. i. p. 805.

§ A'Wood. Hist. of Oxford, vol. i. p. 172.

‖ Works, fol. 229. Edit. 1602.

* Horda. Ang. vol. ii. p. 46.

† Britton. Arch. Antiq. vol. iv. p. 156.

‡ Illustrations, &c., p. 94. In the churchwardens' accounts of St. Mary Hill, London, 1485, is an entry—"Paid the dawber for terysing of floris per day viijd.;" under the date 1497 is a charge for "a lode of lime to overcast the floore in Lewisham's house."

§ Antiquarian Repertory, vol. i. p. 72.

tarini, a rich Italian merchant residing in Botolph, were reckoned valuable moveable furniture. And in the riots at Oxford, in 1502, the glass windows were carried away as rich booty by the rioters.* In London, about 1510, Sir Thomas More, in his 'Utopia,' says, that they keep the wind out of their houses with glass, for it is there much used, and some also with very fine linen dipped in oil or amber; and that for two commodities, for by this means more light cometh in, and the wind is better kept out. In religious houses it was common. At Alnwick Castle, in Northumberland, when the earl removed to another house, the glazed sashes were taken out of the window frames, and laid carefully by, in case they should be broken by the winds or other accidents, until 'my lord' again visited his mansion. How the wind and rain were excluded after their removal does not appear.

At the close of the reign of Henry VIII., domestic convenience and comfort had made a little progress. The rooms in the houses of the upper classes were built capacious and lightsome, and the ceilings were often plastered, or formed of boards. Halls, and parlours, and the chief sleeping chambers, were, as in bygone times, hung with tapestry; or they were lined in a manner recently introduced, with boards of a foreign kind of oak, called wainscot. In houses of the inferior gentry and wealthy tradesmen, parlours and the best bed-rooms were hung with arras, or with a kind of painted or sized cloth, made in imitation of it. Stamped or painted leather imported from Flanders was also latterly introduced as a wall lining. The doors were clumsily made and fitted, but well hinged, for Sir Thomas More says those of London would follow the least drawing of a finger: locks were rare, and internal doors opened with a latch and string. Boarded floors in halls and parlours were becoming common.† Rushes and straw, however, still covered and polluted their surface.

PARTY WALLS.

RECENT AWARD UNDER METROPOLITAN BUILDINGS ACT.

The following award involves a question of considerable importance: the papers came into our hands too late to allow us to offer any observations upon them in the present number, but we may return to the subject on another occasion.

On the 16th of June last Mr. Pownall, district surveyor, gave notice to Messrs. Mansfield and Co., builders, "that the works now in progress at the house situate in Lincoln's-inn-fields, No. 54, are not conformable to the statute in the portions thereof under mentioned," and required them within forty-eight hours from the date thereof to amend the same.

Irregularities referred to:—

The rebuilding a portion of the above-mentioned house, consisting of two fronts of such house. The party wall between Nos. 53 and 54 having timbers running through it; and the party division between Nos. 54 and 55 being a timber partition.

Messrs. Mansfield's reply to the information was as follows:—

"As to the party structure situate between Nos. 54 and 55, we submit that such structure runs from east to west, and that the fronts thereof being at right angles thereto and running north and south have neither been taken down or rebuilt, or in any way touched, and therefore that the 33rd section in no way applies; that the building at present erecting is an attached building to No. 54, Lincoln's-inn-fields, situate in Duke-street, more than 17 feet from the party structure, and at direct right angles, and consequently at opposite angles to the party structure.

Inasmuch as the building owners of the south party wall between Nos. 53 and 54 have not required a survey, and the party structure is not so defective or so far out of repair as to render it necessary to pull down and rebuild the same, we consider that the district surveyor has no power to survey the wall under the 25th section."

After numerous hearings, the following award was made:—

* A'Wood. Hist. of Oxford, vol. i. p. 689.

† In Samlisbury Hall it is curious to observe that the upper floors are massive planks, which, instead of crossing, lie parallel to the joists, as if disdaining to be indebted to them for support.—Whitaker. Whalley.

Office of Metropolitan Buildings,
3, Trafalgar-square.

In the matter of the reference by way of information of Mr. George Pownall, District Surveyor, against Messrs. James and George Mansfield, Builders.

With regard to the party-wall dividing and between the houses numbered, and situate and being No. 53 and No. 54, Lincoln's-Inn Fields, and with regard to the party-partition dividing and between the houses numbered, situate and being No. 54 and No. 55, Lincoln's-Inn Fields, the said premises respectively being within the district of St. Giles's-in-the-Fields and St. George's, Bloomsbury, and within the limits of the Metropolitan Buildings Act, 7 & 8 Vict., cap. 84.

We, the Official Referees of Metropolitan Buildings, duly appointed in pursuance of the said Act, having received information from Mr. George Pownall, the surveyor of the said district by virtue of the said Act, that Messrs. James and George Mansfield, of Little James-street, Gray's-Inn Lane, builders, had not amended certain alleged irregularities, mentioned in the Notice of Irregularity hereto annexed, and having on the 19th day of July, 1845, and again by adjournment on the 31st day of July, 1845, duly heard the said George Pownall and the said James and George Mansfield, and their agents in that behalf, at one of which hearings the said George Pownall proved the due service of the said notice on the said Messrs. James and George Mansfield, and the inspection of the work after the expiration of the said notice, and the failure of the parties to amend the same;—

Do hereby determine and award, with respect to the party-wall first above mentioned, that if the said wall be made as nearly as may be practicable in conformity with the provisions of the said Act, relating to the construction and materials of party-walls, by stopping up all openings therein, and by removing therefrom such timber and wood-work now lying in or running through the said wall, as is not by the said Act allowed to be laid or placed in the substance of party-walls, and by making good the said wall, such party-wall may remain, and need not be pulled down or rebuilt, nor need an external wall be built against such party-wall.

And with respect to the said party-partition, inasmuch as the portions of the back-front of the said house No. 54, which have been taken down and rebuilt, do not adjoin the said party-partition, we make no direction thereon.

And with regard to the costs and expenses attending this proceeding, we, the said Official Referees, do hereby further award:—

First; As to the fees and expenses of the office of metropolitan buildings, that on or before the 23rd day of August, instant, the sum of 14*l.* 3*s.* 11*d.* be paid to the Registrar of Metropolitan Buildings at the said office, No. 3, Trafalgar-square, London, and that such sum be so paid in the first instance by the said James and George Mansfield and the said George Pownall, or by either of them; and that if such sum be paid by the said George Pownall, he shall be entitled to claim and be repaid the same by the said James and George Mansfield.

Secondly; As to the costs and expenses of the said George Pownall as such surveyor as aforesaid, that on or before the said 23rd day of August, instant, the said James and George Mansfield do pay to the said George Pownall the sum of 5*l.* 5*s.*, at his office, at No. 14, Upper King-street, Holborn, in the said district.

In witness whereof we, the said Official Referees, have to this our award, on three pages of foolscap paper, set our hands this 15th day of August, 1845. JAMES W. HIGGINS,
WILLIAM HOSKING.

ARTIFICIAL STONE.—We learn from the *Athenæum*, that an architect at Augsburgh, Herr Aloïs Steiermann, has invented an artificial stone which for solidity is said to surpass the best free-stone, is one-third its cost, and to which any form can be given in the manufacture. It is composed of river-sand, clay, and a cement whose composition is the inventor's secret. It has been submitted to the proof of air, pressure, and fire, and resists them all. The king of Bavaria has given his gold medal of civil merit to Herr Steiermann, for this useful invention.

STAINED GLASS WINDOW IN ST. JAMES'S CHURCH.

MR. EDITOR, with regret as an amateur of the fine arts, I have read the unhappy conclusion to which the committee of taste have come, as touching the stained-glass window in St. James's church, Piccadilly.

Are we ever in this country to get out of trammels as regard architecture and the fine arts?

Thus, some writers designate *Gothic* architecture as *Christian* architecture, and decry all churches built in the Grecian, Roman, or Italian style as Paganism. As if devotion was not congenial with the splendid churches of Germany, St. Paul's in London, or St. Peter's, at Rome. Whilst others declare that because Greece and Rome had no *stained glass* in ancient time, so putting stained glass in a Grecian or Italian built church must be anathematized as bad taste; ideas, in my humble opinion, nothing better than vapouring puerilities, to which no man who has a relish for art ought for a single moment to lend an ear.

The love of antiquarianism at the present day approaches *monomania*. Not only are church windows glazed without subjects to interest the mind or heart, but to *tabernacle work* and *grim figures in niches* are also sometimes added affected *corrosions* of the stains of time!!! a true smack of what was formerly called "*The Smell-fungus School.*"

What may a true love of art in matters pictorial be termed, but a zest for the delineation of nature in its highest, truest, and most perfect state, whether it be in animated subjects or still-life? The rest is mere conventionality. Window glass, of all colours, when it comes from the furnace is diaphanous, and if objects in nature are described upon it, *architecture*, *animal*, or *vegetable* life, its real beauty consists in the *truth* of what it intends to describe, not in a *dirty obscurity*.

But the windows of the smell-fungus school must often excite a smile of pity. Cherubim like monkeys, bishops like mummies, and saints like chimney-sweepers with their faces and robes as dirty as if they had been up the chimney. How different the taste and execution of stained-glass in the churches of *Munich!!!* But we are in trammels. *Westminster Hall* is forbidden ground to the splendid artists of the schools of *Hesse* and of *Cornelius*.

The *protective* system, as regards *art*, is still maintained by Sir Robert Peel in all its intensity. Our youthful aspirants of the pencil are not allowed to profit by a view of what a foreign school can do; and *foreign* talent and *foreign* genius are by Sir Robert put into the same category with the threads and tapes of *foreign* manufacture—what an Augustan age!

The poor artist, fettered by the *res angusta domi*, can know nothing of foreign power and execution, and is thus left to *fancy* that art can be perfectionized intuitively. The authorities of Hamburg want to build a splendid church; they do not call confining art to their own people "patriotism," but, like true lovers of genius, invite competition from *all* nations, and England gains the wreath.

The Prince de Joinville offers to sailors of *all* nations 1,500 francs as a prize for rowing a six-oar sea boat—the sailors from Portsmouth row, and gain the wreath.

Is England alone to consider talent and genius as necessarily circumscribed to the place of its birth? Whatever the *Government* may do, the *people*, I feel assured, repudiate such narrow-minded ideas, and I trust the day is fast arriving when our "powers that be" will no longer tell Talent and Genius that their portals are hermetically sealed against them. Genius is the common property of the world, and ought in all branches to find in England an affectionate welcome.

I am, Sir, &c.,
Neiton. W. MASON.

P.S. Though not of "the *smell-fungus school*" I beg no one will impute to me a distaste to the *Gothic*. I passionately admire art and architecture in "*all*" its varieties.

CONSUMING OF SMOKE.—The Government has appointed Mr. Faraday and Professor Playfair to ascertain how far it is possible to consume the smoke from steam-engine chimneys.

ORIGINAL DESIGN FOR A VASE.

ORIGINAL DESIGN FOR A VASE.

The vase represented by our engraving was designed and modelled at the School of Design by Mr. W. J. Wills, modeller, of 16, Cumming-street, North, Pentonville, and obtained a premium at the last distribution of prizes. On the body of the vase the Thames is allegorized, Commerce and Mercury, the god of merchandize, appear in the foreground; surmounting the whole is the figure of Britannia.

The engraving is one-seventh of the real size of the vase: the whole height is 3 feet 6 inches.

DECORATIONS OF THE NEW HOUSE OF LORDS.

Sir,—As it appears by an article in the last number of "The Builder," as well as in notices contained of late in other periodicals, that a misconception prevails as to the nature of my employment in the works of the new palace at Westminster, I think it incumbent on me, in justice to Mr. Barry, to state that I am engaged by him, and by him alone, with the approval of the Government, to assist in preparing working drawings and models from his designs of all the wood carvings and other details of the internal decorations; and to procure models and drawings of the best examples of ancient decorative art of the proper kind, wherever they are to be found, as specimens for the guidance of the workmen in respect of the taste and feeling to be imitated; to engage with artists, and the most skilful workmen that can be procured in every branch of decorative art, and to superintend personally the practical execution of the works upon the most economical terms compatible with the nature of it, and its most perfect performance. In fulfilling the duties of my office, I do not do any thing whatever on my own responsibility; all models and working drawings being prepared from Mr. Barry's designs, and submitted to him for his approval or alteration previous to their being carried into effect; in fine, my occupation is simply to assist in carrying out practically Mr. Barry's own designs and views in all respects.

Trusting to your fairness in giving insertion to this letter in your next number,

I am, Sir, &c., ✠ A. Welby Pugin.

London, Sept. 3rd, 1845.

Sir,—Replying to the observations contained in your last number "On English Decorators and the New House of Lords," I can state distinctly, that not one single foreigner is, or has been engaged upon the decorations of the New House of Lords; that after receiving the sketches from Mr. Barry, I have drawn them out full size with my own hands, and have entirely directed the execution of them under Mr. Barry's immediate instructions and control. I hope you will give insertion to this plain statement of facts in your next number.

I am, Sir, &c, John G. Crace.

Wigmore-street, Sept. 2nd.

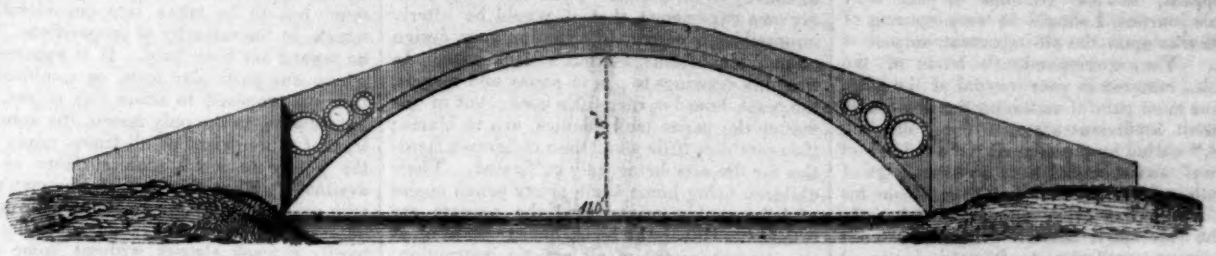
STONE BRIDGE OVER THE RIVER TAFF, GLAMORGANSHIRE.

Pont-y-Pridd (the bridge of the East-house), or the Newbridge, is an extraordinary piece of masonry, consisting of a single arch thrown across the river Taff. It is situated about halfway between Merthyr Tydfil and Cardiff, on the turnpike-road leading from the Merthyr and Cardiff turnpike-road to the Taff Vale Railway Station and Llantrissant, and forms a conspicuous object in the beautiful vale of the Taff, which, being a favoured county, possesses unusual facilities of transit, namely, a good turnpike-road, a canal, and locomotive railway, running immediately parallel to each other.

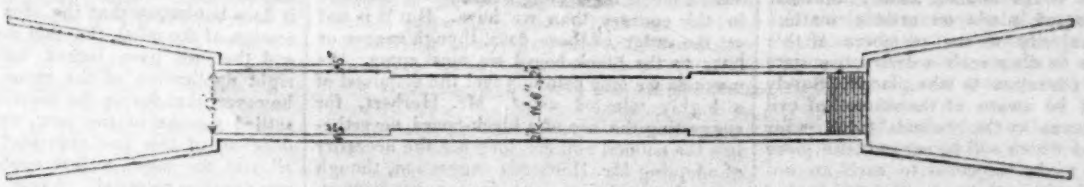
The scenery contiguous is of a rich and romantic character, the confluence of the Taff and Rhonodn Vawr, the amphitheatre of hills, the bold and stupendous bridge, the luxuriance of the hanging woods, the projecting masses of rock, with the foaming and tortuous course of the river Taff, alongside which the railway winds its course, all may be seen at once, presenting a gorgeous and magnificent spectacle, more particularly if viewed from the eminence to the south-west of the village on the road to Llantrissant. The architect and builder of the bridge was William Edwards, son of a farmer of the parish of Eglwysillan, in the County of Glamorgan, where he was born in the year 1719. Having a natural genius for masonry, he was observed to excel in that art, and has left many interesting specimens of his works, exclusive of the one above alluded to, in various parts of South Wales. In the year 1746 he undertook to build a bridge over the river Taff, consisting of three arches, but owing to the uncommon rapidity of the current of this river when swollen by long and heavy rain (to which it is frequently liable from its contiguity to the Brecknock Beacons, whence it takes its rise), the bridge was soon after its erection swept away. He had given ample security for its stability for seven years (a stipulation which it is customary to make in all contracts for public works in South Wales), and he proceeded on his duty in erecting another with all possible speed. The second

NEWSPAPER BUILDER

STONE BRIDGE OVER THE RIVER TAFF.



Elevation.



Plan.

bridge was proposed to be of one arch, the span or chord 140 feet, its versed sine 35 feet. The arch was finished, but the parapets not erected, when the pressure of the ponderous weight over the haunches caused the arch to spring up in the middle, and the keystones were forced out. This second failure was a severe blow, but the spirit of Edwards was not to be disconcerted, and he engaged in the work a third time, when, by means of three cylindrical openings through the work over the haunches, he reduced the weight upon the arch. He also added to the thickness of the parapet wall at the crown of the arch, and reduced it to its smallest possible limit over the haunches, as shewn on the plan, in order to throw additional weight on the former, and to lessen the weight on the latter.

The bridge was completed in the year 1750; previous to Edwards entering upon his task a third time, he, I believe, consulted the celebrated Smeaton, and, acting I have no doubt under his advice, adopted the expedients above stated. In the year 1798, the bridge underwent some extensive repairs at the hands of Edward David and Thomas Evans, as appears from a tablet inserted inside the parapet wall of the bridge at the crown of the arch. The arch, which is of 140 feet span, is a segment of a circle, its radius being 90 feet, and the proportions the various parts of this bridge bear to each other are as follows:—The rise or versed sine to span one-fourth, depth of the keystone to the span of the arch one forty-seventh. The latter is remarkable as being less in proportion than most bridges of modern construction. The masonry is of that description usually denominated rubble, and the stone of which it is composed is the level bedded and shelly sand and limestone of the country.

At the time this bridge was erected, it was considered a great triumph of genius and skill, and is even now thought to be an extraordinary piece of masonry to be accomplished by an uneducated and self-taught architect and masons; still I think if the works had to be performed in the present day, a much more convenient structure might be erected, viz. one of less altitude. The ascent to, and descent from the crown of the arch of this bridge is exceedingly steep and inconvenient, so much so, that if carriages with heavy weights pass over it, the descent cannot be accomplished with safety without the use of the drag (a square frame of timber with a long chain attached to it) which is kept there for that purpose: this is weighted and the chain fastened to the carriage at the summit, and as the carriage descends the one side, the drag, which acts as a counterbalance weight, ascends to the summit on the other. This operation has to be repeated for every carriage that passes over this bridge. The danger of passing this bridge is considerably augmented, in consequence of the roadway being pitched, which renders it difficult for horses to obtain a good foothold. B. B.

Brecon and Merthyr Tydfil.

DESIGN FOR SMALL FARM BUILDINGS.

Having been requested on more than one occasion, to supply a plan for small and inexpensive farm-buildings, we avail ourselves of the following communication:—

Sir,—From solicitations of friends to the allotment system, I have been induced to forward you a design for a cottage with small farm buildings (containing in the area 500 square yards of land, including the fold yard) of simple construction, in brick-work, without any expenditure in external decoration. If you should approve of it, you will confer a favour by giving it a place in your valuable journal.

The cost for the erection of the building will be about 200*l*. I am, Sir, &c.

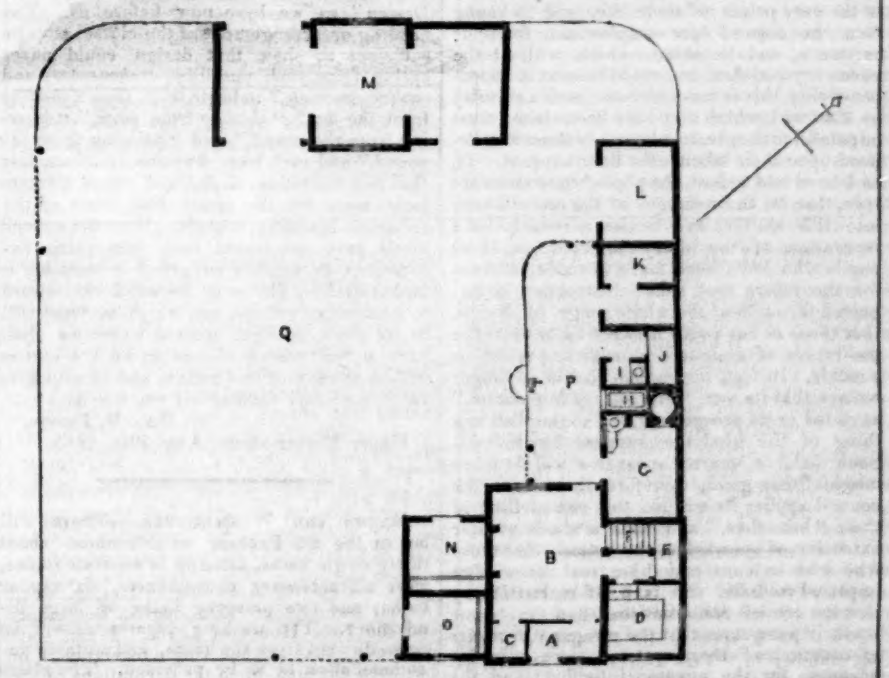
Leamington An Architect.

REFERENCE TO THE PLAN.

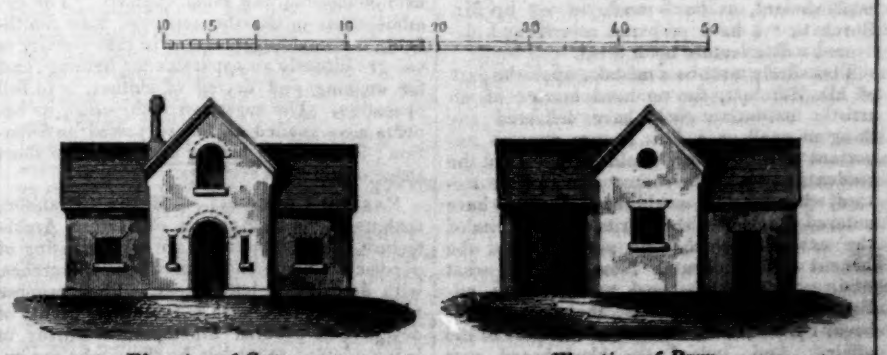
A Porch	G Bakehouse	M Barn, &c.
B Living room	H Hog Cistern	N Cow-house
C Closet	I Privy	O Stable
D Dairy	J Ash-place	P Court with Pump
E Pantry	K Pig-sty	Q Fold-yard
F Stair-case	L Open shed.	

Three chambers and hay tablet, over the cow-house and stable.

DESIGN FOR SMALL FARM BUILDINGS.



Plan.



Elevation of Cottage. *Elevation of Barn.*

COURSE OF STUDY IN THE SCHOOL OF DESIGN.

Sir,—Were I not fully confident that incalculable good will result from the matter which has hitherto appeared, and I hope will still appear, in the columns of your truly valuable journal, I should be very sparing of my remarks upon the all-important subject of *design*. Your correspondent's letter of the 25th ult., inserted in your journal of the 30th, contains most painful matter on the deplorable and most inefficient state of the "drawing school," called by the council "the School of Design;" and though I have no knowledge of the author (Mr. R. Burchett), yet from his letter, which has every appearance of truth, and the fair spirit therein evinced, I cannot help giving credence to it until I see it disproved. If then Mr. Burchett's statement is true, what is the council about? or what sort of informed minds on artistic matters must the majority of the members of this council have to allow such a destructive state of artistical education to take place? Surely they cannot be aware of the amount of evil that must accrue to the students' faculties for the arts, and which will be sure to take place if they are to be subjected to such an unartistical school as this so-called "*School of Design*" is stated to be. Those members of the council who have shewn by their works that they possess a thorough knowledge of design, should immediately investigate this painful subject, and put their shoulders to the wheel to extricate their weighty burden from its clogging difficulty, that the students may have justice done to their faculties for the arts. This should be the first step taken by those members who are strongly gifted with the varied talents of design, in order to the establishing of a sound system of artistic instruction which shall be the most effectual for training the youthful mind up to every variety of true design.

If this "School of Design" is not a school of design, the pupils have been most unjustly treated, for by their own shewing they have had a loss of three years inflicted upon them in the very prime of their life, and to young men who depend upon employment for their existence, and to obtain which without the necessary qualifications would be next to an impossibility, this is most serious; such a severity as that with which they have been visited must be painful to the greatest degree to those who depend upon their labours for their support. If, as I have said before, the pupils' statements are true, then let the members of the council look into this matter, and devise a remedy for a reparation of the injury inflicted on those pupils who have been made to suffer, and see for the future that sound instruction be imparted throughout the whole range of design, that those of our youth who intend to enter the profession of designers be made as perfect as possible. In fact, the council should no longer believe that its own "*branches of instruction*," as stated in its prospectus, will accomplish any thing of the kind they suppose they will do. Such half or quarter measures will do more mischief than good, therefore the sooner the council applies its wisdom to a remodelling of their "branches," and adds a much greater extension of knowledge, the better; that those who wish to learn may have real knowledge imparted to them. It is most extraordinary that the council could not see when they drew up their prospectus that the meagre "*branches of instruction*" therein stated were quite inadequate for the purpose intended; and the smallness of the amount of instruction appears to have been imitated by the head master of the establishment, as he is made to say by Mr. Burchett, "I have prepared myself and delivered a *little* lecture upon them."

This surely must be a mistake upon the part of Mr. Burchett, for no head master of an artistic institution could have delivered any thing so small as a *little* lecture upon so important a subject, or would have caused the students to waste their time upon a *little* lecture, when his duty would have been to have entered deeply into the merits and demerits of the examples which were purchased for the benefit of the students. Now, as this is what a director would be sure to do for the enlightenment of his pupils, there must have been, I think, some mistake in this part of the affair. And, indeed, the black-board part is so very dark, that I cannot comprehend how any mind should be so unenlightened as not to thank Mr. Herbert for so wise and salutary a suggestion as the black-board, it being the readiest article of communication upon all forms which the instructor is bound to convey to his pupils. I can safely say from my own experience, that it would be utterly impossible to convey information upon design or individual forms without a black-board. In teaching drawings to please papas and mamas, the black-board is very little used; but in this matter the papas and mamas are to blame; they care very little about their children's faculties for the arts being duly cultivated. Their children bring home some pretty pencil copies of lithographic prints, and the parents are satisfied. But if the black-board was used at the commencement of all artistic instruction, in all schools as well as colleges, we should have a much more enlightened set of scholars in this country than we have. But it is not yet the order of these days, though sooner or later to the black-board we must come. As much as we may painfully feel the dismissal of a highly talented artist, Mr. Herbert, for suggesting the use of a black-board, nevertheless the council will ere long see the necessity of adopting Mr. Herbert's suggestion, though it appears they dismissed him for proposing it. This is, indeed, a state of things much to be deplored, as the students' designing talents are held in abeyance, to their serious loss and the nation's injury. This is certainly not very wise legislation.

As the faculties for the arts make up a most important part of the human mind, and as legislators make laws for the benefit of mankind, I would most humbly beg to advise all who intend to enter the legislatorial field, to have their faculties for the arts legitimately exercised, in order to obtain a thorough understanding of all the bearings which appertain to a sound system of artistic instruction; they would then see that those faculties ought to have their due exercise as well as all the others, and they would then legislate accordingly. Had this been previously done, we should not have such a prospectus of a "Government School of Design" as we have now before us. The heading or arrangement of the classes is quite sufficient to shew that design could never spring from such puerility—"*elementary* and *outline* drawing," to begin with, then "*shading* from the *flat*," "*shading* from casts," "drawing from the *round*," and "painting from the *round*," and such like. Any one would suppose that this collection of *flat* and *round* elementaries were for the pretty *little* dears of the suburban boarding schools. How the council could have sanctioned such unmeaning expressions to explain so grand a purpose, is inconceivable. However, we will look forward to a thorough reform, and which we trust will be set about in right earnest, when we shall have a real school of design, such a one as will be worthy of this nation, and to which its youth are justly entitled.—I am, Sir, &c.,

Geo. R. Lewis.

Upper Norton-street, Aug. 30th, 1845.

Baths and Washhouses.—There will be in the St. Pancras establishment about thirty single baths, fitted up in separate rooms, with all necessary conveniences, six vapour baths, and two plunging baths of large dimensions. The washing department will be quite distinct from the baths, and suitable accommodation is to be provided. The prices will be 1d. for a private cold bath, containing sixty gallons of water; and 2d. for a warm bath containing the same quantity. The establishment in Glasshouse-street, East Smithfield, for enabling the poor in that vicinity to use gratuitously an apparatus for bathing, and for washing and drying of clothes, is in full operation. The eagerness with which its benefits were availed of, far surpassed anticipation; 987 persons having used it in the short space of nineteen evenings.

Parish Churches.—Messrs. Brandon, authors of "The Analysis of Gothic Architecture," have announced a work consisting of perspective views and plans of parish churches, with descriptive letter-press. They propose to select such churches as from their beauty of design and peculiar fitness, seem worthy of being adopted as models by those who are engaged in church building.

ON EXTERNAL APPLICATION OF FORMS

TO THE DISCHARGING OUTLETS OF BUILDINGS, AS THE MEANS OF EFFECTING VENTILATION.

In remarking upon the subject of ventilation by the application of any outward formation, much has to be taken into consideration, to which, in the majority of propositions, little or no regard has been paid. It is apparent, that where one particular form or combination of forms is proposed to attain this object, and is put forward as the only means, the assumption is, that there exists at all times ready for use the *power* to make such surfaces or forms available. That this can be any man's belief who reflects on it is impossible, for common observation alone contradicts it; but when hardly a week elapses without some new(?) nostrum appearing as the *sine qua non*—as the remedy for this *now* acknowledged necessity, it does but betray that the idea has taken possession of the mind, that this power is at hand, and that we have lacked hitherto only the right application of the same. The fact is, however, that during the most calm, warm, and settled months of the year, we are the most deficient of this first requisite, without which all, and the most perfect applied forms, are mere useless material. Again, unless both the area of the exit from a building and the power used there to ventilate be carefully managed and properly proportioned, so as to produce in its progress through that building such currents as shall not be felt, ventilation will not be submitted to. The precise amount of air must be drawn in as is expelled or drawn out; and the currents which are produced by a power always varied and uncontrolled, are the several amounts of ventilation, sometimes inducing dangerous drafts, but ofttimes when wind is wanting, no ventilation at all; so it is evident we cannot expect either constancy in action, or regularity in quantity, by depending on any outwardly applied form simply and alone for its attainment. In the summer months all are ready to acknowledge the necessity for perfect ventilation, and as common sense directs, we resort to the free opening of windows, doors, &c.; and for our usual dwellings there cannot be a more rational course. The more freely this is done, the less the danger of inconvenience by drafts; for as drafts are only caused by the difference of weight in the atmosphere within and without the house, depending upon the rarefaction produced in the chimneys by fires and other similar causes, so the more free and constant such openings are, the less will be the tendency to drafts, and the more pleasant and unobserved the ventilation. But during the winter part of the year, as these facilities cannot exist, this object must be effected by other means; and in looking to the wind for this power, as being that only by which outward formations can be acted upon, we experience it at one time tempestuous, and at another powerless, but at all times varying and uncertain, while we retain the same unchanging form to receive its action,—even admitting that form to be the most proper to induce the upward current. Now, allowing this action by wind to be at times effective to create this desideratum, we require at this season the addition of warmth in conjunction with ventilation; and this it is which makes it a complex question, certainly not to be solved by any outward application, because for every quantity of vitiated air withdrawn by any acknowledged power, we require a precisely similar amount at an agreeable temperature. As an illustration how little ventilation alone could be submitted to by some classes of society, we have but to turn our attention, and reflect upon the thousands now inhabiting the east parts of this vast metropolis, who are ill-fed, ill-clad, and worse housed (daily practically illustrating Hood's Shirt dirge), and consider that this ventilation would be death more hurried;—relieving from a more insidious, to expose them to a more acute, but a not less certain destruction.

But widely different is the question when it affects large or public buildings. "The temples of religion, palaces, or theatres are exceptions to this ban: the joint process is in them attainable and comparatively simple, for air can be introduced at such temperatures as we choose and combined too with moisture, not the arid breath of the torid zone, for we in them can imitate the climate of Madeira. To accomplish this three things are required:

1st. An air-warming chamber. 2nd. Minutely divided emitted currents from it into the building; and, 3rd. A controlled external discharge for the vitiated air, ready, and capable of being made sufficiently active at all seasons. The practicable method of carrying out this combined operation is beyond consideration for ordinary dwellings, excepting in cases where they might be constructed as a block of building for a number of families, as has been frequently proposed."

The ventilation for common dwelling-houses can be carried no further, and need not be, in my opinion, than by admitting a regulated quantity of air by the upper sash, or by applying in one of the upper panes some of the various guards to shield such apertures, as Fairs' Moveable Glass Louvres, Dr. Guy's Perforated Guarded Plates, or Bailey's Fixed Louvre, with a covering slide. Either of these will fulfil the purpose for the admission of air, and for the withdrawal of the same we have no means at hand so simple, so ready, and so costless as our usual chimney draught. Presuming the fire at the lower level to be capable of performing its part, viz. that of changing the lower stratum of air, there remains only to insert an outlet valve in the upper part of the chimney-breast communicating with the same chimney, to effect a ready and constant renewal of the higher level of air sufficient to meet the wishes of the most particular upon this point.

Again, reverting to outward applications only, there is the following condition, to which our common dwellings are constantly exposed, which would totally defeat such ventilation. One part of a building, or one room is of greater altitude than another, and from the presence of an excess of heat in that portion over the other, or from its altitude, or from other causes productive of a like result, the current is *from* the lower or less rarefied portion to the higher or more rarefied; here, notwithstanding the outlets from each were furnished with similar perfect forms, yet it would be seen the ventilation would proceed *from* one of the two in the right direction upward, while the other would be the inlet for a reverse current, only excepting such times as when the power of the wind would be in excess over the rarefying power within the building. The one outlet fulfilling its intent *independent* of the original proposed outward form, but assisted by it in such times as supposed, and the other, although similar in every way outwardly, yet for any effect by it not only powerless but the actual passage of a reverse action.

I think this will suffice to exemplify the uselessness of depending for ventilation wholly upon any outward formation, as alike contrary to experience and entirely opposed to the usual conditions in which every occupied building exists. I have only one remark to make upon this point, viz. that whatever form may be applied at the external discharge of ventilators to keep out the rain, or guide the discharged current (for this is their legitimate use) in the direction of the prevailing wind, the plan of that form should be the circle, as being the only one equi-distant from the centre affording equal action in all winds.

Drury-lane. G. B. Cooper.

Exhibition of Architectural Drawings.—The Association of Architectural Draughtsmen exhibited during the past week, at their rooms in Southampton-street, Strand, an interesting collection of their drawings, shewing that they have amongst them some very able men. We have not space to particularize, but we will mention with commendation the works of Mr. L. W. Collman (whose designs for decorations have been honourably mentioned on several public occasions), Mr. Pritchard, Mr. J. R. Colling, Mr. J. D. Wyatt, Mr. W. B. Colling, Mr. Rodriguez, Mr. E. C. Sayer, the hon. secretary, &c. Architects requiring assistance will do well to apply to the association.

The Emperor of Russia and Mr. Snow Harris.—Through the medium of the Russian Ambassador, Baron Brunow, his imperial majesty has recently sent to Mr. W. Snow Harris, of Plymouth, a handsome porcelain vase, in token of the great estimation his majesty entertains of Mr. Harris's ability as displayed in his mode of constructing lightning conductors for shipping.

MR. GRAINGER ON FORM OF SEWERS, DRAINS, AND SUPPLY OF WATER.

The Health of Towns' Association have published a lecture delivered by Mr. R. D. Grainger, of St. Thomas's Hospital, containing a general exposure of the causes of the unhealthiness of towns and its remedies. Foremost amongst the sources of disease in towns is defective drainage and sewerage. "It is impossible to exaggerate," says our author, "the defective state of the drainage generally found in towns: large districts, and those the most densely populated, entirely unprovided with these necessary outlets; sewers and drains placed on the surface, and constantly emitting pestilential exhalations; sewers, even in many of the principal districts in towns, so shallow as to be merely adapted to *surface* drainage, leaving the basement stories of houses and cellars where these are used for habitations, as in Liverpool and Manchester, altogether undrained, though in a special degree requiring it; sewers and drains constructed upon wrong principles as to form, dimensions, and materials; a want of proper traps to prevent the escape of noisome stenches and effluvia; and, more than all these defects put together, a totally insufficient supply of water, without which, as Dr. Southwood Smith justly observes, 'not only is no good done by a drain, but the very evil intended to be avoided is positively increased and extended.' The necessity of an ample supply of water, which ought to be as freely given as the air we breathe, meets the inquirer in every branch of the question; it matters not what you speak of—of house drains, court drains, street sewerage—of water-closets, privies—of wash-houses, baths, and personal cleanliness—or of decent habits and the comforts of home—to say nothing of the question of whole ranges of warehouses and the revenue of a principality annually destroyed by fire in some of our great cities; in all directions and upon all questions you are met with the *want of water*. As a complete and effective system of drainage, like so many other sanatory improvements, demands an ample supply of water, the two subjects may be advantageously considered in connection.

The existing system would appear to indicate an expectation that the sewers and drains are to effect many things which it is quite certain they never have and never can accomplish; and, amongst the rest, that by impressing a kind of volition upon the more solid parts of their contents, these latter should obligingly carry themselves off, and in the case of Liverpool, for example, walk into the Mersey, or in that of Manchester, into the Irwell. But this is a kind of feat which matter, with its accustomed stubbornness, will not perform, however much desired. On the contrary, all liquids holding solids in solution or mechanical suspension, are so desirous of getting [rid of their burden, that they deposit it whenever and wherever they can.

Wherever there is any delay in the course of the filthy water of towns, there a deposit of offensive and poisonous mud takes place; in every angle and turn—on any the least inequality of surface, an accumulation of solid matter does and must be formed; and as much of this matter is in a state of minute division and moisture, and all of it, periodically, on the falling of rain, it presents precisely those physical conditions which facilitate its escape into the air in the form of a poisonous vapour.

The great law, then, which regulates deposits of matter held in solution, is, that whenever the current is retarded, the solid particles have an increased tendency to subside; or, to speak more exactly, the ordinary law of gravitation operates under more favourable circumstances. It becomes a point of consequence to know, whether there exist in our public and private drains and sewers, and in the surface of streets, courts, and alleys, any causes which will promote deposits according to the above principle. The answer has already been given in the invaluable reports and evidence of the Health of Towns' Commission. By their unnecessary size and defective form, most of the older sewers being flat at the bottom, they cause a retardation in the flow of their muddy contents, and thus, of necessity, produce a lodgment of putrefying animal and vegetable matter. Another source of deposit is the improper direction of these conduits, the sharp angles and curves of which, especially where the smaller sewers enter the main trunks, lead to obstruction, and to these must be added the various irregularities of surface connected with all masonry, especially when it is originally bad or gets out of order. The construction of house drains is liable to the same remarks, all of them being built of porous materials, much too large for their contents, and ordinarily square, the worst of all forms for such a purpose.

The best form of sewers and drains is a question of much moment. "If they are constructed with a flat bottom, an accumulation of animal and vegetable matter must take place; for in this form of drain the force of the water is weakest precisely where it ought to be the strongest, namely, at the bottom; and in addition to this, the upright side-walls are liable to be forced in and destroyed. The best form of a common sewer is the egg-shape, which conduces to hydraulic pressure, and with this form and a plentiful supply of water, deposits would, to a great extent, be prevented, and whenever these did occur, by increasing the pressure of the water, which can readily be effected, they would be removed and the sewer scoured out. The egg-shaped sewer not only possesses the advantage of superior efficiency, but is likewise much more economical. It has been calculated by Butler Williams, Esq., one of the professors at the college for Civil Engineers, that by substituting this form for the sewer with upright sides and flat at the bottom, there would be a saving in the construction alone of 1,600*l.* per mile.

There is, however, a mode of drainage which to me seems infinitely preferable to any other—I mean the improved *drain tubes* recommended by Mr. Dyce Guthrie.* They are circular in form, and are made either of terra-cotta or of common brick clay; and as it is most desirable that all drains should be *impermeable*, to prevent their poisonous air escaping, Mr. Guthrie proposes that the drain-tubes should be glazed on the inside. "What!" some persons will exclaim, "would you glaze the inside of a drain as you would the inside of a basin to hold food?" Exactly so; and in the end this tubular system of sewerage would be cheaper, for it is not only much less expensive as to material, but in construction and subsequent maintenance. The form being circular, combines these advantages: the drain is strong, and it would thus be enabled to resist the superincumbent pressure; it could be made of much smaller size than the ordinary drain; and it could be readily washed out by a flush of water; indeed, it is probable that the sewer would be kept cleansed by its own action. For house drains and smaller sewers, tubes of from four to six inches in diameter would be sufficient, whilst for larger sewers the size should be from twelve to eighteen inches or more. If this tubular system of impermeable drains could be introduced, with a sufficient supply of water for washing them out, so as to guard against accumulations, the sanatory condition of a town would be immensely improved."

A copious supply of water is important in another respect. "By an improved supply of water in the city of New York, and a high pressure always being kept up in the mains, so that the hose can be directly supplied from them, the cost of insurance against fires has been reduced 25 per cent. Many who are present can form some estimate of the vast sum which such an improvement would effect in Liverpool, not only by a reduction of the yearly premium upon insurance, which, from the losses by fire, has been raised from 8*s.* to 35*s.* per cent.—the rate in London, for the same risks, varying from 2*s.* 6*d.* to 5*s.*,—but in the enormous amount of valuable property, which would thus be rescued from destruction. In Philadelphia, and in this country, in Nottingham and other places, corresponding benefits have resulted from similar improvements.

Economy would not only be consulted in this particular, by an ample supply of water, but in every other where it is concerned. It is found in the Holborn and Finsbury district, that by far the cheapest mode of cleansing the sewers is by washing them out, or *flushing* them, as it is called; in fact, the cost is about one-third of what it used to be: in one cleansing alone there was a saving of expense to the commission of 1,293*l.* Again, the ordinary expense

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* See "The Builder," Vol. II. p. 522.

of cleansing those ever-acting foci of pestilence, cesspools, is, in London, 1*l.* to 1*l.* 10s. per annum, or from 5d. to 7½d. weekly; whilst it is stated that water companies could construct and maintain in repair an apparatus in the nature of a water-closet and house drains for the removal of all refuse and waste water, two points of incalculable advantage in sanatory respects, for a weekly charge of 2½d. to 3d. per house. Mr. Chadwick, in his admirable sanatory report, has shewn the great loss in other respects from a want of water, and he has rendered a great service to the community by demonstrating that all the manifold benefits which would spring from an ample supply of this prime necessary of life would each, and every one of them, be accompanied by a pecuniary gain."

Mr. Grainger urges, very properly, the necessity of extending scientific instruction to surveyors, builders, and others, with whom much of the details must rest. "When it is recollected that all persons charged with great public interests are expected to undergo a long and extended course of study; that the clergyman, the medical practitioner, and, now, even the lawyer, must submit to a rigid examination before they are permitted to undertake duties involving the well-being, the health, and the property of the community, I confess I do not see why another class of officers, to whose intelligence and zeal are committed interests not less momentous, should not also pass through a preparatory course of study, and have their knowledge tested by a proper examination. There is no art, scarcely even any business, in which an acquaintance with science is not necessary, or at all events advantageous; and we may remark, that it is quite possible for a person to be familiar with all the technicalities of bricks and mortar, and to know the contents of a cube of stone or wood, and yet to be ignorant of those important principles which are essential to an enlightened system of sanatory measures. There are scientific questions concerned in all the business of drainage, ventilation, and the supply of water; and thus a knowledge of hydraulics and other branches of physics, as well as of chemistry, becomes indispensable to an efficient surveyor."

QUESTION OF PATENTS,

AND PROPOSITION TO ASSOCIATE THEORY AND EXPERIENCE.

Sir,—I do not consider your columns should be used as a medium of compliments between those who may indulge in scribbling for them, but I am disposed for once to depart from this proposition by thanking Dr. Sutro for his kind notice of my article touching the occupation of newly-erected houses, and more especially for his sensible remark as to the tone "in which I should rejoice to see all scientific discussions carried on though interest or fame may be affected," that is, without asperity or overweening vanity. I avail myself of this quotation as opening the discussion of the question of patents, upon which I have perhaps peculiar views; and Dr. Sutro's frank admission that science and practice should walk as sisters, hand-in-hand, appears to afford a fair opportunity of discussing the point. With respect to improvements emanating from individuals tending to benefit and improve the condition of society, I hold our talents are entrusted to be diffused to the greatest extent upon the principles of reciprocity, as it is not given to the human mind each to grapple with every subject. This involves the right of patent, and I am not prepared to contend that an individual having bestowed vast labour, and, probably at great cost, produced that which materially adds to the comforts or elegancies of life should not, by such protection, be enabled to reap the fruits of his labour by fair protected remuneration: but by a parity of reasoning, the public offering this protection have a right to demand the greatest and most useful results by enforcing conditions not interfering with the admitted rights of this party. I would therefore suggest that a party having (as at present) registered a patent, before it be granted, a proposition should be submitted to a board constituted of accredited and scientific men, with power to suggest and insist upon such alterations and additions as should apparently make it more perfect and applicable to its proposed use. And that the party should then have it patented with these improvements, of course, greatly to his gain, as being thus accredited, and with saving of anxiety and further cost to the individual whose invention was not thus accredited as of benefit to the public. Dr. Sutro's remark—"that experience deserves greater appreciation in such cases than theory, and that nothing would be more dangerous than to sacrifice facts to speculation," implies that his mind is not imbued with the pedantry (and I use not the term offensively), that too frequently is an adjunct to science. We shall cheerfully accord to science the evidence of cause and effect, but then it has to be practically applied; let us therefore by free discussion, ascertain the probable result of any theory, the desirableness of which I will endeavour to illustrate thus:—In my youthful days when under mathematical discipline, it was accredited as proveable to demonstration, that the progression of a body could be correctly ascertained as to its velocity, taking into account certain data, viz.: impetus, resistance by friction, atmosphere, &c.; the formula adopted was proposed to prove the positive results upon the data, and thus universally *scientifically* accredited, until a practical question arose in regard to the form of carriages, &c., upon the Great Western Railway, having reference to these points. The course adopted was to call in Dr. Lardner and other *scientific* men to meet Mr. Brunel (whom we all recognize in the one as the other character), and *practical* men; the result of the inquiry being, as I am informed, that too much value had been attached to friction, and too little to the resistance of the caprices of the atmosphere. I hail your journal as the neutral ground between science and practice, for free communication, whereby much good might result if practical men would publicly give their theory and proposed mode of operative detail. The scientific man might be induced to reason upon certain ascertained facts controlling the proposed results, or as rendering them efficient. Par exemple: limiting the desperate long period of Dr. Sutro for the occupation of houses, might be appended to his proposal (upon ascertained principles) the all-important desideratum, proper and uncontrolled ventilation of rooms. Having devoted some attention to, and to some considerable extent using a mode for curing smoky chimnies, which has been adopted by several of my professional brethren (or I should rather say a mode of avoiding them in construction, thinking their existence has been a sad opprobrium to us), it has long been my intention to intrude my views upon your readers, waiting only for leisure to make a few diagrams. If my principle of creating currents be admitted, I then have a crotchet of connecting the ventilation of a room with the positive adjunct of a fire-place, never, I hold, to be omitted in even the garret of a fourth-rate house. Here then I want the aid of science: not professing to understand the principles of currents, the caprice with which they take their course, and the mode of displacing or associating with fouler atmosphere, a proposition made in ignorance of these facts may positively tend to counteract well recognized principles of nature, which it happens to be aside my habits or pursuits to understand. G. R.

NEW CHURCH, HUNTINGDON.

This church was commenced last week, on the site lately occupied by the theatre. It is to be built in the Norman style of architecture. The contract is taken by Mr. Howard, builder, of Newington Causeway, London. The amount of contract is about 3,000*l.* The size of nave, in clear of walls, is 55 by 27 feet: it is calculated to seat 800 persons, including gallery; the greater part of the seats are to be open benches, and free. The walls will be of brick, and dressings of doors and windows Caen stone. There are at present only two churches in the town, which will together seat about 1200 persons. The population of Huntingdon, according to the census in 1841, was 3,507,—thus shewing the great want of more church accommodation. This church is to be built at the sole expense of the Lady Olivia B. Sparrow. The architect is Mr. W. G. Habershon, of St. Neots.

RECEPTACLE FOR SEPULCHRAL MONUMENTS.

The notion of erecting a sort of "Campo Santo" at one of the entrances to Paris, which formed the subject of considerable interest some time since, has become now, according to the *Illustrated London News*, a matter of almost certainty. The glories of "Pere la Chaise," says a writer in that journal, will be thus considerably eclipsed. The cemetery is to be covered, after the models of those of Pisa, Verona, Bologna, &c., which are now imitated in several cities of Germany. The cemetery will become in a few years a species of temple consecrated to the dead, and ornamented with all that art can imagine to honour and perpetuate the memory of man. In the long vaulted galleries will be ranged sculptured tombs, as in the ancient charnels of the cemetery of the "Innocens;" in the superior stages, sepulchral chambers, destined for families, will be decorated with mural paintings. The grounds of this immense edifice will be planted with trees, shrubs, and flowers; the "Campo Santo," being covered, will thus afford shelter to statues, bassi relievi, inscriptions, cenotaphs, from the degradations that the hand of time, and above all those of man, have visited on monuments which have been exposed to all the violences of atmosphere, the insults of the profane, and the severest "ills that stone is heir to." It is principally in an art point of view that the foundation of such a covered cemetery is to be considered. It will afford to architects, to sculptors, to painters, an added opportunity for the exercise of their gifts; and there is no doubt, if fully carried out, it will ultimately become the most vast, the most curious, and the most magnificent museum in Europe. A similar scheme for London has been proposed by more than one person, and will doubtless be carried out here before long.

ABBOT'S LANGLEY CHURCH, HERTS.

This church, which is dedicated to St. Lawrence, consists of a nave, two side aisles, a chancel with a chapel on the south side, and a square embattled tower having a short spire of lead. The tower, nave, and chancel, are built chiefly of flint covered with plaster, with the exception of the chapel on the south side of the chancel, which is a very good specimen of stone and flint, disposed alternately in square compartments.

The clerestory wall of the nave is supported by Norman piers and arches of good execution and in a fine state of preservation; each of the capitals are of different design and handsomely sculptured. Upright pieces of timber which support the ends of the tie-beams rest upon grotesque heads serving as corbels, and are decidedly of Norman workmanship. The font is of good design, its age between the thirteenth and fourteenth centuries. The pulpit, which is situated at the extremity of the nave on the north side, has unfortunately been erected with less taste than bounty, and to a certain extent mars the *tout ensemble* of the interior.

The chancel is in the perpendicular style, and was wholly appropriated to the reception of monuments until latterly, when the present incumbent with a liberal hand restored that and other parts of the church to their original purpose—removing a handsome marble monument of Lord Chief Justice Raymond, that then completely filled up the space now occupied by the perpendicular window over the communion table, which window has been replaced and filled with richly-painted glass representing St. James, St. Peter, and St. John, in canopied niches. The floor of the chancel has been laid with encaustic tiles of good device; the numerous alterations and repairs have all been done at the expense of the vicar, the Rev. Mr. Gee. The church is now perfectly restored to its pristine form, the parishioners therefore owe for this reparation of their church a debt of gratitude to their minister, and may congratulate themselves that their church this time, at least, has escaped that destroyer of architectural remains, whitewash.

Amongst other circumstances worthy of record, this parish is famous in history for having given birth to Nicholas de Camera, commonly called Nicholas de Breakspear, the

only Englishman who ever had the honour of filling the papal chair. "There is a farm in this parish in the possession of R. Solly, Esq., which still preserves the name of Breakspear, and probably was the place of his nativity. He was the son of Robert de Camera, and when a youth endeavoured to gain admission into the monastery of St. Albans, where he wished to assume the monastic habit, but was refused admittance upon the ground of insufficiency in learning. The manner of his death is differently related by different authors. Matthew Paris says, he was poisoned because he had refused to make the son of a Roman citizen a bishop, from his being unworthy of that situation.

The parish is in the liberty of St. Alban's, one mile and three-quarters S. by E. from Kings Langley. The Grand Junction Canal and the Birmingham railroad both pass through the parish. The ground for the contemplated Booksellers' Provident Retreat, which was presented to the charity by Mr. T. Dickinson, is situated in the parish at an easy distance from the church. R. B. W.

Correspondence.

BUILDING STONE.

Sir,—As your columns are open to whatever may be useful or interesting to your readers, I trust you will not object to find a niche for the present very brief note. My object is to draw attention to a stone produced from a quarry near Leeds, and called the Otley Chevin stone, but which, though excellently calculated for architectural purposes, is less known to surveyors, builders, &c., than its merits deserve. I have seen various testimonials in its favour from some of the best judges, but the following extract from a certificate by Dr. Ure is so explicit as to its qualities as to render any further recommendation almost superfluous. The doctor states, "I have subjected a sample of it (the Otley Chevin stone) to the appropriate test invented by the celebrated French engineers of bridges and highways, viz., MM. Vicat, Billandel, and Courard, and find it to be capable of resisting the decomposing force of the elements for an indefinite length of time. It is, in fact, a silicious grit, so closely aggregated, and so devoid of fissures, as to bid defiance to the corroding tooth of time, and to be, therefore, admirably adapted to every architectural purpose where strength and durability are the great requisites." To the above may be added, that it is also capable of resisting great heats, and consequently is adapted for many chemical purposes. These few remarks are offered in the hope and belief that they will be found as conducive to the public advantage as to the private interest of any individual, and I conceive that by giving this publicity you will confer an obligation on many of your readers.

I am, Sir, &c., Amicus.

DISTRICT SURVEYOR ON THE THAMES.

Sir,—A case has recently occurred at Greenwich which is of very great importance to the trade, and seriously affects all persons holding water-side premises on the banks of the Thames from Wandsworth to Plumstead.

The following are the brief outlines:—A short time since I was employed to repair and reinstate a jetty or platform, and small erection thereon, consisting of privy and small warehouse, the whole entirely upon the same site and dimension as before, not connected with the house which is upon the banks, but placed upon piles driven into the bed of the river Thames, around which the tide constantly flows.

Mr. Brown, district surveyor for that locality, has laid an information on the ground of neglecting to give due notice, and demands treble fees. My reply before the magistrate, last Friday week, was, that not giving due notice did not arise from any neglect, but from a firm conviction that Mr. Brown, as district surveyor, had no authority to interfere upon the river Thames. The case stands over for another hearing on the 10th instant.

The 3rd section of the Building Act. p. 7, specifically refers to boundaries and to localities; the words of the Act are, "to all such parts and places lying on the south side, or right bank of the said river, as are within the exterior boundaries of the parishes of Woolwich, &c. &c." "and to all places lying within two hundred yards from the exterior boundary of the district hereby defined."

The question I wish to be solved is, looking at the express words of the Act, has Mr. Brown, or has he not, any supervision in this case?

My firm opinion is, that the words in the Act, banks and sides of the Thames, mean and intend to denote the fixed or starting point, and the 200 yards only apply to the boundary south of those fixed points, as the river Thames cannot be called place or places, and more especially as I believe the river is within the liberties of the city of London, consequently cognizant to the city authorities, for which I think the Act provides. I shall feel obliged if you or any of your correspondents will in your next publication give me their candid opinion upon this very important matter.

I am, Sir, &c.,

Thos. Smith, Builder, &c.,

Dock Head, Bermondsey.

Miscellanea.

The Exchange at Frankfort.—A correspondent of the *Athenæum* remarks that there are in Germany a vast number of buildings, of which no boast is made, which give evidence of what is so extremely rare elsewhere—originality. Walking along the streets of Frankfort, we were suddenly arrested by the sight of a building of great beauty and simplicity. Neither Grecian, Italian, nor Gothic; obviously neither a palace, a theatre, nor an hospital; handsome, substantial, and harmonious, in proportion, ornament, and colours—it was the Exchange. To be sure; who would doubt it? It is just what the Exchange should be; and exactly the Exchange of Frankfort; not of vast magnificent London, the queen of commerce, or of showy brilliant Paris—centres of powerful monarchies, but of the wealthy free city, the seat of a substantial *bourgeoisie*. The material is brick of two colours—the architectural resources of which Lord Lovelace has shewn in the pretty schoolhouses he has built at Ockham. At Frankfort it is of course employed on a grander and more elevated scale, and therefore without those pretty fancies in the way of borders and ornaments, which are so appropriate and so cheerful in those cottage-like buildings of which the design is, in a double sense, so honourable to the noble architect. You must not ask me for details which I cannot give, partly for want of technical knowledge, partly of accurate recollection. But as to the general impression I can never forget how harmonious, how original and appropriate (*zweckmässig* is the very word), this unpretending and uncopied building appeared to us. The London Exchange I have not seen; that of Paris is one of those ludicrous misapplications so common in England and France, and what is more, a very ugly one. One asks till one is tired, why is every thing to be feudal, or Greek, or Palladian? We want none of these things. The whole actual idea and purpose of a building should not 'jurer' with its traditional idea and purpose, like the beautiful Madeleine, where, after it was finished, it was discovered that this Catholic church had no place either for confession or belfry (!), or the frightful Bourse, the frequenters of which have nothing in common with Greece or Greeks, but a peculiar sort of ingenuity and acuteness. I never heard the Frankfort Exchange mentioned, nor can I tell you the name of the architect. All I know is, that he is one of the few people who can do any thing but imitate.

Ranelagh Suspension Bridge.—A company is being formed, having for its object the erection of a suspension bridge across the Thames for carriages and passengers, from a point a little to the east of Chelsea Hospital to a point on the west of the Red House, Battersea. The estimated expense, inclusive of a steam-boat pier, approaches, &c, is 90,000*l*. Mr. H. H. Bird is the engineer.

Buckingham Palace, during the absence of the Court from town, is to undergo various embellishments and alterations. The grand hall is to be decorated somewhat in the style of the Royal Pavilion in Buckingham Gardens; and in the north wing alterations are to be forthwith made.

Works at St. Mary Redcliffe Church Bristol.—We direct the attention of builders and contractors to an advertisement which appears in our columns, for tenders to execute certain works at Redcliffe Church. Only a part of the restoration is to be now contracted for, but it may reasonably be expected that the parties employed in the first instance will continue on the work till all is completed. We trust, now that operations have commenced in earnest, that fresh subscriptions for this noble undertaking will be poured in. Too much praise cannot be given to the committee appointed to effect the restoration, for the zeal and ability with which they are proceeding.

New Prison at Clerkenwell.—The Middlesex magistrates have determined to pull down the present building, and to erect on its site one of larger dimensions, on the plan of the Model Prison at Pentonville; the work of demolition commenced during the present week. It is expected that the new building will be completed in about eighteen months.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For certain Masons', Carpenters', and Plumbers' and Glaziers' Work about to be performed in various repairs and restorations to St. Mary Redcliffe church, Bristol.

For Paviors, and Masons' Works to be done to the foot and carriage ways of St. James, Westminster, for a term of three years.

For Paving and repairing certain carriage and footways in the parishes of St. Margaret, and St. John the Evangelist, Westminster, for one year, and so on from year to year until three months' notice shall be given by either party to determine the same.

For certain Works to be done adjoining the present workhouse premises at Lower Homerton, for the guardians of the Hackney Union.

For building railway goods' waggons, ballast waggons and horse boxes, and supplying carriage couplings according to plan, for the Great Southern and Western railway (Ireland).

For the execution of Works on the Dundalk and Enniskillen railway, being a distance of ten miles.

For Lighting the public Lamps on the Lucas estate, St. Pancras, with gas, and keeping the same in repair.

For supplying the North British Railway Company with 2,500 tons of Cast-iron Chairs, and 140,000 Larch or Baltic Timber Sleepers.

For supplying the Middleborough and Ridcar Railway Company with 36,000 Oak Keys.

For the execution of Works on the Leeds and Thirsk Railway.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17¼ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For supplying her Majesty's several Dockyards with Cast-iron Articles for twelve months certain.

For supplying 300 Sets of Wheels, Axles, and Guard Irons to the Great Southern and Western Railway (Ireland).

For the execution of the whole works of the first ten miles of the Hawick branch of the Edinburgh and Hawick Railway.

For 500 Tons of Cast-Iron Socket Pipes with bends, branches, syphons, &c., for the Commercial Gas Light and Coke Company, Stepney.

For the construction of the Gas Works at Wells, Norfolk, and all necessary apparatus.

For the construction of Three Reservoirs for the Blackburn Waterworks Company: also, of Stone Culverts for conveying the water a distance of about 2¾ miles. The earthwork will amount to about 180,000 cubic yards.

For the erection of an Infirmary at the Lambeth Workhouse.

For the execution of works on the Manchester South Junction and Altringham Railway, in two parts: 1, being a distance of 1½ mile; 2, being a distance of 7¾ miles.

For the execution of Works on the Manchester and Birmingham Railway in 2 parts. 1. The Ashton Branch, being a distance of about 4¾ miles. 2. The Macclesfield branch, being a distance of about 30 chains, including a tunnel of 330 yards in length.

For the repair of all the roads within the Bridgwater trust for a term of three years from the 6th of October next.

For the execution of that portion of the Edinburgh and Northern Railway, extending from Burntisland Pier to Kinghorn.

For supplying the Trent Valley Railway Company with about 200,000 sleepers of good sound Baltic timber.

For supplying the Clydesdale Junction Railway Company with about 2,500 Tons of Rails, and about 600 Tons of Chairs.

For supplying the Leeds and Thirsk Railway Company with 100,000 Railway Sleepers.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of that portion of the Newcastle and Berwick Railway, extending from Netherton to Tweedmouth, being a distance of about 53 miles. To be let in four contracts.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For supplying the Wakefield, Pontefract, and Goole Railway Company with about 7,000 tons of Malleable Iron Rails, and 2,000 tons of chairs.

COMPETITIONS.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

Adjoining the entrance to the East Country Dock, Rotherhithe, about 85 loads of new East-India Teak, and 60 loads of sound African Oak Timber.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"Constant Reader."—*Notwithstanding our correspondent's objection, we know no better depositary for his £15 than a Savings' Bank. It is difficult to employ advantageously a small sum.*

"A Subscriber."—*Mr. Cockerell's Lectures are not published. Accurate reports of the last course will be found in the* BUILDER, *pp.* 31, 38, 63, 73, 85, *ante. The "Athenæum" contains very excellent and full reports of previous courses.*

"A. B."—*The letter on Purity of Water is simply an advertisement.*

"One of your constant Readers."—*Replies to the whole of the questions put to students in Architecture at University College would form an elaborate treatise on the subject. We will see what can be done.*

"J. Morgan." (School of Design); "T. A.," and "Amicus" *are declined with thanks: we cannot afford space.*

"Ed. H."—*Laxton's "Price Book" will give the information required.*

"J. C."—*We shall be glad to learn the decision of the commissioners.*

"A Youngster."—*The Institute of Architects have published a valuable pamphlet on "Dilapidations," which may be had of Weale, Holborn. There are several larger works on the same subject. The most recent is by Gibbon.*

"H. A."—*The block unfortunately arrived too late for the present No. We shall be glad to avail ourselves of it next week.*

"Messrs. Testa's Glass Warehouse."—*A correspondent wishes to know where it is situated.*

"A. B."—*We shall be glad to see the drawing.*

"W. J. S."—*We cannot tell without seeing the drawing.*

"A Young Builder."—*If the circumstances were correctly stated to us, our reply may be safely acted on.*

"Stained Glass Window in St. James's Church."—*Correspondents must excuse us for not replying to the numerous letters we have received on this subject. It is hoped that a change will yet be made.*

"J. C.;" "W. H.;" "E. H.;" "J. L.;" "J. P.," *and various tenders, next week.*

Received: "*Second Report of the Commissioners for Inquiring into the State of large Towns,*"—"*The Philathenic,*" *No. I. (a Monthly Magazine connected with the Metropolitan Literrary Institutions),*—"*Dolman's Magazine,*" *No. VII.,*—"*Old England,*" *part* 21 *(Knight),*—"*Pictorial Gallery of Arts,*" *part VIII.*—"*Illuminated Magazine,*" *No. III.*

ADVERTISEMENTS.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

ROYAL ADELAIDE GALLERY, Lowther Arcade, Strand.—ATMOSPHERIC RAILWAY daily, with a Lecture, at Two and at Half-past Eight. A series of Lectures, with Illustrations, on the manners and customs of the Ancient Egyptians, by Mr. E. Clarkson, every Monday Evening. Mr. Russell's Lectures on Character, with Musical Illustrations, every Tuesday, Thursday, and Saturday Evenings. Les Reunions Magiques, on Wednesday and Friday. Lecture on Science, Daily, including Major Beniowski's Artificial Memory; Beale's Rotatory Steam-engine, &c. Every Evening a grand Promenade Concert, supported by first-rate talent, both instrumental and vocal. NEW ZEALAND CHIEF on Tuesday, Thursday, and Saturday, at three o'clock in the afternoon; and on Monday, Wednesday and Friday Evenings at eight o'clock.

A MAGNIFICENT, EXTENSIVE, and UNIQUE COLLECTION of TROPICAL FRUITS, modelled by Mons. Grimaud during his long Residence in the Isle of France, is just deposited at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY is lectured upon by Professor Bachhoffner, and exhibited Daily, and in the Evenings. A NEW AMERICAN INVENTION, COLEMAN'S PATENT LOCOMOTIVE ENGINE for ascending and descending inclined planes on Railways without the aid of stationary power. SWIMMING and DIVING ILLUSTRATED by the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays, at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight o'clock. The other Exhibitions, &c., as usual.—Admission, One Shilling; Schools, half-price.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

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TO ENGINEERS, ARCHITECTS, AND BUILDERS.

PATENT METALLIC SAND CEMENT.—The Metallic Sand, from its chemical qualities, forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar, specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.

Further information will be given, and specimens shewn, on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's-road, opposite Pratt-street, Camden New Town.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS-LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

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MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful Cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material or the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.